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August 1999

MONTHLY LABOR REVIEW

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Measuring how people spend their time

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The *Monthly Labor Review* (USPS 987–800) is published monthly by the Bureau of Labor Statistics of the U.S. Department of Labor. The *Review* welcomes articles on the labor force, labor-management relations, business conditions, industry productivity, compensation, occupational safety and health, demographic trends, and other economic developments. Papers should be factual and analytical, not polemical in tone. Potential articles, as well as communications on editorial matters, should be submitted to:

Editor-in-Chief
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Washington, DC 20212
Telephone: (202) 606–5900
E-mail: mlr@bls.gov

Inquiries on subscriptions and circulation, including address changes, should be sent to:
Superintendent of Documents
Government Printing Office
Washington, DC 20402
Telephone: (202) 512–1800

Subscription price per year—$31 domestic; $38.75 foreign. Single copy—$10 domestic; $12.50 foreign. Make checks payable to the Superintendent of Documents.

Subscription prices and distribution policies for the *Monthly Labor Review* (ISSN 0098–1818) and other government publications are set by the Government Printing Office, an agency of the U.S. Congress.

The Secretary of Labor has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this Department. Periodicals postage paid at Washington, DC, and at additional mailing addresses.

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Information is available to sensory impaired individuals upon request:
Voice phone: (202) 606–7828
Federal Relay Service: 1–800–877–8339.

POSTMASTER: Send address changes to *Monthly Labor Review*, U.S. Government Printing Office, Washington, DC 20402-0001.

Cover designed by Keith Tapscott

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The August *Review*

Time is one economic factor that is equitably distributed, at least in the short run. Bill Gates and your editor and the pauper in the street get 60 seconds per minute, 60 minutes in an hour, 24 hours in a day. Of course, how many days are distributed to us varies, as does how we distribute the time we are allotted. Our use of time is perhaps the ultimate constraint on human activity and thus is an important determinant of our financial status, health, well-being, and general happiness, according to Mary Joyce and Jay Stewart. Their lead article to this special issue on measuring time and its use goes on to catalog some specific applications of time-use data from placing a value on nonmarket work to assessing time-related aspects of the quality of life to examining how the use of time varies over the business cycle.

The next two articles explore the complexity of using, or even obtaining, time use data. Robert A. Pollak's note on the theoretical issues time-use data address examines the structural relationships of household production and the behavioral relationships that determine time allocation among activities. In each case, there are both implications for data collection. And each case, Pollak concludes, "requires time-use data, but time-use data are not enough."

How to approach time-use data collection was a problem posed to a Bureau of Labor Statistics working group. Linda L. Stinson describes some of the methodological decisions that group foresees facing an agency that proposes to conduct such a survey. These issues include the survey mode, the additional or clarifying information to be sought in follow-up probes, and the activity classification system used to code the data.

All of the discussion to this point has involved measuring time and its use in a household context. In the final article, Jurgen Kropf and Patricia Getz examine a technical aspect of converting reports with other than weekly pay periods to weekly hours equivalents in the Bureau of Labor Statistics survey of establishment payrolls. They also describe a method for normalizing such reports in such a way as to reduce noneconomic fluctuations in the data.

Most work stoppages short-lived

Most major work stoppages in the United States in 1998 lasted 2 weeks or less. The four shortest work stoppages lasted for just 1 day, while the longest stoppage of the year lasted for more than 7 months. Fully a third of stoppages in 1998 were less than a week long. An additional 23 percent lasted between 1 and 2 weeks, for a total of 56 percent that were in effect no more than 2 weeks.

The longest work stoppage of the year commenced on May 3, 1998, at Peterbilt Motors Co. This stoppage—involving 1,200 workers represented by the United Automobile Workers—came to an end after 206 days on November 24, 1998.

More about work stoppages can be found in news release USDL 99–33, "Major Work Stoppages, 1998." Major work stoppages are defined as strikes or lockouts that idle 1,000 or more workers and last at least one shift.

Bigger firms, bigger checks

In March 1999, workers in the largest establishments in private industry received by far the highest compensation per hour. Compensation of employees in establishments with 500 or more workers averaged $26.37 per hour, compared with $18.14 in establishments with 100 to 499 workers and $16.27 in establishments with fewer than 100 workers.

Employees in the largest establishments were paid $18.37 per hour in wages and salaries. This was almost 40 percent more than the average wage of $13.17 for workers in medium-sized establishments and nearly 50 percent more than the $12.29 average for workers in the smallest.

Benefits received by employees in the biggest workplaces also outstripped those of other employees. In establishments with 500 or more workers, benefits averaged $8.00 per hour; this was more than 60 percent higher than the $4.97 average received by employees in establishments with 100 to 499 workers and about twice as high as the $3.98 average in establishments with fewer than 100 workers.

More information can be found in news release USDL 99–173, "Employer Costs for Employee Compensation, March 1999."

Refuse collection occupation hazardous

Refuse collection is one of the most hazardous jobs in the country. From 1992 to 1997, the fatality rate for refuse collectors was 10 times the overall on-the-job fatality rate. The fatality rate for refuse collectors averaged 46 deaths per 100,000 workers per year. The fatality rate for all occupations was 4.7 deaths per 100,000 workers.

There were 132 fatally injured refuse collectors in the 1992–97 period. The annual number of fatalities ranged from 18 in 1993 to 29 in 1995. Vehicles inflicted most deaths on refuse collectors.

Additional information is available from "Job Hazards in the Waste Industry," *Compensation and Working Conditions*, Summer 1999. □

News releases discussed above are available at:
http//stats.bls.gov/newsrels.htm

What can we learn from time-use data?

Data on the ways in which people allocate their time among daily activities can be used to answer questions on a broad range of economic and sociological issues

Mary Joyce
and
Jay Stewart

The study of economics often is concerned with optimal decisionmaking in the face of some sort of constraint. Economist Thomas Juster has argued that the ultimate constraint on human activity is time.[1] We are each given 24 hours per day to devote to competing uses, and how we use that time has important implications for our financial security, health, emotional well-being, and general level of happiness. Time-use surveys attempt to measure the numerous and diverse ways in which people use those precious 24 hours.

Time-use data could contribute to research and policy analysis in a number of areas. One area that has recently received considerable attention is the prospect of measuring and valuing unpaid but productive activities (that is, nonmarket work) with the ultimate goal of including the value of these activities in a satellite account of the National Income and Product Accounts. Although the valuation of nonmarket work has been the primary political impetus behind the collection of time-use data, it is by no means the only use of these data. In this article, we discuss some of the many research applications of time-use data.

National estimates

Perhaps the most fundamental application of time-use data would be to provide nationally representative estimates of the amount of time that Americans spend in various activities. The types of activities that could be captured include: productive nonmarket activities such as housework; home maintenance and repairs; child care and care of elderly and disabled persons; leisure activities such as watching television, reading books or magazines, pursuing hobbies, and socializing with friends; and nonproductive, nonleisure activities, such as waiting in line and commuting.[2]

If time-use data were combined with demographic information, such as that available from the Bureau of Labor Statistics Current Population Survey (CPS), it would be possible to compare time use across different groups. For example, analysts could compare time spent in housework and child care between men and women; time spent on educational activities between students and nonstudents, or between students at different grade levels; time spent on leisure activities between single and married parents; time spent watching television between persons in families of differing earnings and income levels; and time spent cooking and cleaning between persons with differing levels of market work. Conducting a time-use survey on an ongoing basis would allow researchers to study how the time spend in various activities changes over time.

The availability of national time-use data would also facilitate comparisons of time-use patterns in the United States with patterns in other countries. In addition to comparing measures of material well-being such as GDP, analysts could also study how Americans fare on such nonmaterial dimensions as hours of free time.

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Valuing nonmarket work

A long-standing criticism of the U.S. National Income and Product Accounts is that they count only productive activities that take place in the market economy and ignore productive activities that take place outside the market, particularly those done in the home. In recent years, there has been renewed interest, particularly among women's groups, in placing a monetary value on nonmarket work. The 1995 United Nations Fourth World Conference on Women stated in its Platform for Action (item 206) that "national, regional and international statistical agencies should measure, in quantitative terms, unremunerated work that is outside national accounts and work to improve methods to assess and accurately reflect its value in satellite or other official accounts that are separate from but consistent with core national accounts." [3]

Aside from putting a dollar figure on household work, accounting for the value of nonmarket production would provide a more comprehensive picture of aggregate output, income, and productivity in the United States. For example, the increase in women's labor force participation has resulted in a shift from nonmarket work to market work. This increase in market work caused measured gross national product and per capita income to rise, resulting in a somewhat distorted pictured of the trends in aggregate production and income because the accompanying decrease in nonmarket work was never accounted for.

Valuing the time spent in nonmarket activities will undoubtedly be challenging and controversial. A key conceptual issue in measuring nonmarket work is deciding on exactly what should be measured. In order to distinguish between productive and personal activities, the "third person criterion" often is used. Under this criterion, an activity is deemed productive if it could be delegated to someone else while achieving the desired result. For example, preparing a meal would be considered nonmarket work, but eating it would not be.[4]

After deciding which activities are productive, the next step is to place a value on these activities. This valuation can be done a number of ways. One approach, known as the output approach, involves identifying the outputs (that is, goods or services) that result from these productive activities and then assigning a price to those outputs. Although this approach is conceptually closer to the way market goods are treated in the National Income and Product Accounts, data availability issues make it difficult to implement in practice.[5] A second approach, known as the input approach, requires an estimate of the amount of time spent in productive activities that is then multiplied by a wage rate. The time spent in nonmarket work can be readily obtained from a time-use survey, and the wage rate can be imputed in a number of ways.

To illustrate, consider the simple example of building a deck for a house. Three possible wage rates could be used to value this activity: (1) an individual's wage rate at his or her job, (2) a "specialist" wage rate (that is, the average wage for carpenters), or (3) the "generalist" wage (the average wage for handymen). Although there are advantages and disadvantages to each, most analysts use the "generalist" wage.[6]

There are three drawbacks to the input approach. First, as with market work, the time spent in an activity may not be a good indicator of the value of the output produced. For example, someone who has never built a deck would take longer than someone with more experience to build a deck of similar quality. Second, the choice of wage rates used to value various activities is somewhat arbitrary. Finally, many types of nonmarket activities are performed simultaneously with other activities (for example, providing child care and watching television) and researchers have not yet reached a consensus on how to value the time spent doing simultaneous activities.

Verifying and interpreting existing series

Time-use data can also aid analysts in verifying data that currently are collected in a number of surveys. Data on hours worked provide an example. It has been noted by researchers that, over the past 20 years or so, average weekly hours as measured by the Current Employment Statistics survey (CES), a BLS establishment survey, have declined, while average weekly hours in the CPS, a BLS household survey, have remained fairly constant.[7] This discrepancy has called into question the accuracy of hours worked data reported in household surveys such as the CPS.

John Robinson and Ann Bostrom compared hours worked measures obtained from time-diary data with those obtained from a CPS-like question.[8] They found that respondents tended to report more hours worked in the CPS-like question than in time diaries, that people who worked more hours tended to overreport by a larger amount, and that overreporting increased between 1965 and 1985. However, Jerry A. Jacobs, using data from the 1992 National Survey of the Changing Workforce, found that the CPS-style measures of the workweek correlate well with a new measure of work time derived from questions that ask for departure and return times to and from work (less commuting time).[9] Jacobs also argued that the discrepancy between the time-use diaries and CPS estimates of the length of the workweek may be a statistical artifact resulting from random measurement error in both measures. Conducting a time-use survey would be a useful way of studying whether respondents tend to overreport hours worked in the CPS survey.[10]

Similarly, existing information on the time spent commuting could also be verified with time-use data. National data on hours spent commuting typically come from a standard survey question that asks, "How many minutes does it usually take you to get to work?" This question was asked in the 1990 Journey to Work Survey conducted by the Census Bureau as

part of the decennial Census. These data could be compared to those obtained from a time-use survey that collects information on start and stop times for all activities, including traveling to work.

Time-use data could also be helpful in interpreting price index data. It has been argued that part of the reason that inflation has been so low is that consumers have to wait more for some services and that they shop around more for bargains. For example, health maintenance organizations typically charge less than fee-for-service health plans, but their patients also typically wait longer to see a health-care provider. This reasoning implies that people are increasingly substituting time for money.

A time-use survey that is linked to an expenditure survey, such as the Consumer Expenditure Survey, would make it possible to attach a "time cost" to specific goods and arrive at an alternative price index. In the absence of this linkage, time-use data collected over multiple periods could shed light on trends in these types of time expenditures. For example, a stable inflation rate of, say, 3 percent per year may indicate inflationary pressures if consumers are, in actuality, spending increasing amounts of time waiting or shopping for bargains.

Measuring real income and well-being

Typically, analysts use quantifiable measures, such as real income or earnings, to assess changes in the quality of life over time. Collecting information on time use would permit a more complete assessment of changes in quality of life. For example, stories in the popular press report that some individuals have quit high salary jobs that require long working hours to take lower paying jobs with fewer hours. While these people consider themselves "better off," any objective measure of income or earnings would indicate that these individuals are "worse off." Data from a time-use survey that is linked to a household survey, such as the CPS, would permit analysts to account for the increase in nonmarket production and leisure time when assessing changes in quality of life.

A broader income measure also would improve analysis on earnings and income inequality, both of which have increased in recent years. However, analyses that ignore home production and leisure may be misleading. This point also applies to the measurement of poverty. With time-use data, it is possible to measure a family's command over a broader set of resources.

Education and training

One important form of investment for any society is the amount of time and resources spent by both children and adults in learning activities. Many learning activities, particularly among young children, take place at home rather than in formal educational institutions. A time-use survey, particularly one that collects diaries from or about children, can provide information on the amount of time that preschoolers spend reading or interacting with parents and the amount of time that school-age children spend doing homework. Comparisons, both over time and across countries at a point in time, of the time spent in these learning activities would be informative.

Policy and business cycle changes

At present, we know a great deal about how policy changes affect individuals' labor market behavior. For example, higher income taxes tend to reduce labor supply. But little is known about how government policies affect the way individuals spend their nonworking time. Do they engage in more nonmarket production or do they consume more leisure? Time-use data can shed light on this issue.

If time-use data are collected on a continuous basis, as are CPS data, analysts could examine how time-use patterns change over the business cycle. For example, during recessions, do people shift from take-out meals to home-cooked meals, or from purchased laundry services to doing their own laundry? Time-use data could also be used to study how unemployed persons use their time—how much time is spent on job search, retraining and education activities, nonmarket production, and leisure? Time-use among the nonemployed could also help refine our definitions of a "discouraged" worker.

Business and legal applications

Marketing is one area of business that would likely be interested in time-use data. Marketers could use this information to determine how time spent in various activities (for example, television viewing, radio listening, shopping, eating out) differs by demographic characteristics, earnings, and income.

Time-use data also have legal applications. For example, these data might be useful to those estimating the economic damages in personal injury and wrongful death cases. Typically, economic damages primarily include lost earnings. The value of home production either is omitted from the valuation, is based on old survey data, or is created from the survivors' estimates of nonmarket production. Time-use data on a nationally representative sample would provide a more complete picture from which to estimate the economic loss associated with an injury or wrongful death.

Timing of activities

In addition to providing information on the duration of time spent in various activities, a time-use survey also captures what time of day and in what sequence these activities take place. Such information could be used in a variety of research applications. For example, data on when and how much people sleep could be used by researchers interested in studying sleep patterns. Data on when people work could be used to deter-

mine the wage premium required to compensate workers for working at undesirable times. Psychologists also could use time-use data to study the degree and nature of multitasking. What types of people typically do more than one thing at a time? What types of tasks usually get grouped together?

BECAUSE TIME-USE SURVEYS COLLECT information on all the activities that individuals engage in during a 24-hour period, time-use data are remarkably wide in scope. Availability of such information would allow researchers to answer a host of questions that have long been neglected for lack of data to address them. In this article, we have listed some of the potential applications of time-use data. Undoubtedly, we have only scraped the surface. As Rebecca Blank, an economist at the Council of Economic Advisors, stated it at a recent National Academy of Sciences conference: "After having time-use data, researchers will wonder how they ever did research without it." □

Notes

[1] See F. Thomas Juster, "Time Use Data: Analytic Framework, Descriptive Findings, and Measurement Issues," Paper prepared for the Workshop on Measurement of and Research on Time Use, National Academy of Sciences, Washington, May 1999.

[2] See the article by Linda Stinson elsewhere in this issue for a detailed description of various activity classification systems that have been used to capture the ways in which people spend their time.

[3] See United Nations, *Platform for Action, Report from the Fourth World Conference on Women* (Beijing, United Nations, September 1995), also on the Internet at **www.undp.org/fwcw/dawoff.htm**

[4] The third person criterion is the most general criterion used to distinguish unpaid work from personal activities. However, Statistics Canada and International Research and Training Institute for the Advancement of Women have developed other criteria that are used to qualify the third person criterion. See Statistics Canada, "Household' Unpaid Work: Measurement and Valuation," Catalogue No. 13–603E. No 3 occasional (Ottawa, Statistics Canada, 1995); and International Research and Training Institute for the Advancement of Women, "Measurement and Valuation of Unpaid Contribution: Accounting through Time and Output" (Santo Domingo, Dominican Republic, 1995)

[5] Duncan Ironmonger argues for the construction of national household accounts that would be completely separate but analogous to the national income and product accounts (which he would believes should be renamed the national market accounts). These accounts would not only measure outputs from household production but also households use of labor, capital, and intermediate materials. In order to construct such accounts, he argues, three types of household surveys are essential: household time-use surveys, household expenditure surveys, and household output surveys. According to Ironmonger, the latter has not been done by any national statistical office. See Duncan Ironmonger, "National Accounts of Household Productive Activities," Paper prepared for the Conference on Time Use, Non-Market Work, and Family Well-Being, Bureau of Labor Statistics and the MacArthur Foundation, Washington, November 1997.

[6] See Luisella Goldschmidt-Clermont, "Monetary Valuation of Non-Market Productive Time: Methodological Cons-iderations," *Review of Income and Wealth*, series 39, no. 4, pp. 419–434; Chris Jackson, "The Valuation of Unpaid Work—A Canadian Perspective," Paper prepared for the Conference on Time Use, Non-Market Work, and Family Well-Being, November 1997; and Steven Landefeld and Stephanie Howell, "Accounting for Nonmarketed Household Production within a National Accounts Framework," mimeo. April 1999.

[7] See Katharine Abraham, James Spletzer, and Jay Stewart, "Divergent Trends in Alternative Wage Series," in John Haltiwanger, Marilyn Manser, and Robert Topel, eds., *Labor Statistics Measurement Issues* (Chicago, University of Chicago Press 1998); and John Robinson and Geoffrey Godbey, *Time for Life: The Surprising Ways Americans Use Their Time* (University Park, PA, Pennsylvania State University Press, 1997). Note that the levels of the two measures are expected to differ because they measure different concepts (hours worked in the CPS and hours paid in CES). However, this should not affect the trends.

[8] See John Robinson and Ann Bostrom, "The overestimated workweek? What time diary measures suggest," *Monthly Labor Review*, August 1994, pp. 11–23.

[9] See Jerry A. Jacobs, "Measuring time at work: are self-reports accurate?" *Monthly Labor Review*, December 1998, pp. 42–53.

[10] There are two drawbacks to using time-use data to verify CPS hours, however. First, time use is measured during one 24-hour period, so that comparisons would only be made possible by constructing synthetic workweeks. Second, the effect of proxy reporting in the CPS, which may account for some of differences between household labor force information and time diary data, could not be determined.

Notes on time use

Time-use data alone are insufficient for estimating household technology and the behavioral relationships that determine the allocation of time among activities; to estimate household technology requires data on all outputs and all inputs, whereas to estimate behavioral relationships requires recognizing the roles of preferences, intrahousehold allocation, and technology

Robert A. Pollak

Time-use data can be used to estimate both structural relationships, such as household technology, and behavioral relationships, such as the determinants of the allocation of time among activities.[1] The implications of economics for collecting time-use data for estimation depend critically on the underlying theory. For economists, the starting point for theory is Gary S. Becker's "household production" model, in which households are "assumed to combine time and market goods to produce more basic commodities that directly enter their utility functions."[2] Elaborating on this model, Robert T. Michael and Becker cite applications to such commodities as "'good health,' children, marriage, or 'intercity visits'"[3] and urge its application to "new variables . . . more global in nature than the goods and resources traditionally considered."[4] Examples of these more global variables include "children, prestige and esteem, health, altruism, envy, and pleasures of the senses."[5]

The household production model is an application of the rational actor model: Bentham updated by Becker. Becker's assumption that households "combine time and market goods to produce more basic commodities that directly enter their utility functions" appears to place restrictions on the constraints households face. But without specific assumptions about household technology, there are no restrictions: the conventional economic model in which market goods enter the utility function directly is a special case of the household production model in which the number of commodities is equal to the number of market goods and each market good corresponds to ("produces") a single commodity. The power of the household production model to place restrictions on household behavior derives from specific assumptions about the technology households use to transform goods and time into commodities and about the relationship between the number of goods and the number of commodities—Becker insists that commodities "are much smaller in number than the goods consumed" and cites, with apparent approval, Bentham's list of 15 fundamental sources of "pleasure and pain."[6]

Commodities

Robert A. Pollak and Michael L. Wachter, in an early critique of the household production approach, raise concerns about observability and measurability, arguing that

> in some potential applications, the variables being investigated are not "commodities" (the outputs of production processes) but rather utilities (numbers representing preference orderings). These misapplications confound tastes with technology by interpreting specific utility functions as production functions.[7]

Although the household production terminology is misleading when applied to activities that do not produce observable and measurable outputs, a major contribution of Becker's model has been to call attention to the possibility of applying economic analysis to the allocation of time among activities.

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In contrast to the problem of observing and measuring activities and commodities, that of *identifying* them does not appear to have been discussed in the household production literature. This silence is not surprising, considering that an analogous problem exists for market goods.[8] The range of admissible definitions of goods is somewhat limited by the need to remain consistent with the definitions used in market transactions. Because this consistency requirement is absent for activities and commodities, they are, to a greater extent than goods, socially constructed by researchers who study them.

Simultaneous activities (for example, walking and chewing gum) present problems for the collection and analysis of time-use data. I propose to distinguish between two types of simultaneous activities: *parallel* and *on call*. Parallel simultaneous activities include walking and chewing gum; driving a car and listening to the radio; and flying in a plane and reading. On-call (or standby) simultaneous activities usually involve responsibility for the care of another person ("monitoring," "watching," "minding") in situations in which the time demands are stochastic. On-call activities include cooking while caring for a child who is sleeping, cleaning house while caring for a disabled spouse who is reading, and reading while caring for an elderly parent who is watching television. An individual who is on call may engage in other activities, but the range of activities that are compatible with being on call is constrained in terms of location and is limited to activities that may be interrupted. For purposes of data collection and analysis, simultaneous activities can be handled by defining compound activities (for example, treating walking and chewing gum as a single activity), but handling simultaneous activities in this way would greatly expand the number of activities. By focusing on a limited number of compound activities (for example, those involving the care of children and those involving the care of the elderly) and ignoring the rest, we may be able to obtain most of the advantages of defining compound activities without creating an unmanageable number of categories.

Joint production

Even when commodities are observable and measurable, commodity shadow prices still pose serious problems. Unless the household technology exhibits constant returns to scale and no joint production, commodity shadow prices depend on preferences, as well as on the prices of market goods, wages rates, and the parameters of the household technology. As Pollak and Wachter point out,

> Households with different tastes [and the same technology] will select different commodity bundles, and, . . . the commodity bundles they select will imply different commodity prices. The unwary economist might attribute some part of the difference in the [commodity] consumption pattern of our two households to these differences in commodity prices, but such an interpretation would be highly misleading; the differences in commodity prices are a reflection of differences in tastes, not differences in opportunities.[9]

Thus, if joint production is pervasive, as Pollak and Wachter argue that it is, commodity shadow prices are not useful independent variables. Indeed, despite their prominence in Becker's theoretical expositions of the household production approach, commodity shadow prices have played an insignificant role in empirical work.

Joint production arises when a production process or activity produces two or more "outputs." Pollak and Wachter consider a model with two processes, one producing a "home cooked meal" and the other a "clean house."[10] Each process requires the input of market goods and time. If the time is provided by a paid worker from outside the household, then we can model the situation as involving two "outputs" or "commodities" that enter the utility function: "home cooked meal" and "clean house." If, on the other hand, time is provided by a member of the household—to avoid extraneous complications, consider a one-person household—additional "commodities" will enter the utility function unless the individual is indifferent between these uses of time. That is, two individuals with the same household technologies and the same preferences for "home cooked meal" and "clean house" will allocate their time differently if one of them enjoys "time spent cooking" relative to "time spent cleaning" more than the other. F. Thomas Juster and Frank P. Stafford characterize such direct preferences for time use as "process benefits,"[11] which can be negative ("disbenefits") or positive; there is no presumption that time spent cooking or cleaning increases utility. From a technical standpoint, process benefits imply joint production—instead of two commodities, there are four: "home cooked meal," "clean house," "time cooking," and "time cleaning."

The number of commodities severely limits the number of activities that an efficient household needs to operate at positive levels. More precisely, if there are m commodities, and if household technology exhibits constant returns to scale, then any commodity vector can be produced efficiently by operating no more than m activities at positive levels. Thus, if there are constant returns to scale and 15 commodities, then at most 15 activities are required to produce them efficiently. With the number of commodities and activities so constrained, the commodity short list is unlikely to include such specific commodities as "home cooked meal," "clean house," "time cooking," and "time cleaning."

Household preferences versus individual preferences

The assumption that households produce "basic commodities that directly enter their utility functions" implicitly assumes that households have utility functions. For a one-person household, this is unobjectionable, but often the focus is on two-person

households. In the years since Becker's 1965 paper was published, economists have become increasingly uncomfortable with models that rely on household utility instead of individuals' utilities. Bargaining models of marriage allow us to begin with individual preferences rather than household preferences.

The earliest bargaining models of marriage were cooperative models in which the "threat point" was divorce and the "private good" over which the spouses bargained was leisure. Bargaining models of marriage stand in contrast to "common-preference models," in which households behave as if they are maximizing household preferences. Resource pooling provides an empirical test of common-preference models: if households behave as if they are maximizing a utility function, then which spouse controls resources would have no effect on household behavior—expenditure patterns and time-use patterns would be unaffected by the distribution of control over resources between husbands and wives. Empirical evidence, however, shows that household expenditure patterns *are* sensitive to control over resources, implying the rejection of resource pooling and, hence, all approaches that assume or entail the existence of a household utility function.[12]

Application: housework in one-person households

Even for one-person households, we need strong, restrictive assumptions about preferences to reach strong conclusions about the effects of changes in wage rates on time allocation. For example, suppose individuals derive no process benefits from time spent in household production or in the market, so that time is allocated between the household sector and the market sector solely on the basis of the physical commodities produced. Suppose further that home production requires household time, but not market goods. Then the problem of the consumer reduces to allocating time among household production, market work, and leisure so as to maximize utility. Even under these conditions, additional assumptions about the structure of preferences are needed to obtain strong results about the effect of wage changes on time allocation. Two special cases are instructive.

Perfect substitutes. Suppose that housecleaning services available in the market are a perfect substitute for home-produced cleaning or, more generally, that the home-produced commodity and the market good are perfect substitutes. With perfect substitutes, an increase in the wage rate must cause a decrease in time allocated to home production. The intuition behind this result is that the individual allocates time to home production, until the marginal product of home production is driven down to the level at which an extra hour would produce the same return in the market as in the home; beyond that point, nonleisure time is allocated to the market, earning income which is used to purchase the market good. Furthermore, even with perfect substitutes, theory predicts only the direction of the change, not its magnitude.

Perfect complements. If the home-produced commodity, the market good, and leisure are perfect complements (that is, if the utility function has fixed coefficients), then utility increases only when all three increase simultaneously. Thus, in response to an increase in the wage rate that is not offset by a reduction in other income, a utility-maximizing individual decreases time allocated to market work and increases both time allocated to home production and time allocated to leisure.

Theory does not imply that single women and single men with the same wage rates will allocate the same amount of time to home production or to other activities. This would be the case if men and women had identical household technologies *and* identical preferences. But if women care more about a clean house relative to market goods than men do, then this gender difference in preferences implies a corresponding difference in time allocation. Similarly, if women and men derive process benefits from home production and women like housework relative to market work more than men do (or dislike it less), then these gender differences in preferences imply corresponding gender differences in time allocation. To incorporate process benefits into the analysis requires expanding the number of arguments in the utility function beyond the home-produced commodity, the market good, and leisure to include the time devoted to home production and the time devoted to market work. Gender-related differences in preferences imply gender-related differences in time allocation, but economics generally has little to say about differences in preferences.

The "gender display," or "gender construction," literature argues that housework is culturally or socially defined as "women's work," while market work ("breadwinning") is defined as "men's work." The literature not only goes on to argue that women and men internalize these definitions of gender-appropriate activities, but also attempts to explain the sources of these differences.[13] But regardless of their sources, differences in preferences imply differences in patterns of time use.

Application: housework in two-person households

A starting point for discussing time allocation in two-person households—consisting of, say, husbands and wives—is to suppose that each individual is concerned with the same five commodities as in the one-person household: the home-produced commodity, the market good, leisure time, time devoted to home production, and time devoted to market work. Interdependent preferences, which arise when one spouse's utility function depends on the other spouse's consumption or time use, complicate the picture. With *paternalistic* interde-

pendent preferences, a wife may, for example, want her husband to exercise more, because "it's good for him," even though he would rather spend his time watching television. More generally, paternalistic interdependent preferences are compatible with each spouse preferring a different consumption and time-use pattern for the other spouse than the other spouse would choose for himself or herself. With *nonpaternalistic* (also called altruistic or nonjudgmental) interdependent preferences, each spouse cares about the other's utility. Thus, nonpaternalistic interdependent preferences respect "consumer sovereignty": the wife wants her husband to allocate his time between exercise and television in just the way he wants to allocate his time between these activities.[14] Plainly, then, preferences are more complex in two-person than in one-person households.

Constraints are also more complex. One new issue is the substitutability of the husband's time and the wife's time in household production; the simplest assumption is that they are perfect substitutes, but this assumption seems implausible and is unsupported by empirical evidence. A second new issue is the construction of a "household technology" from the husband's technology and the wife's technology, an issue that has not been addressed in either the theoretical or the empirical literature.

In two-person households, gender display can accommodate the possibility that husbands and wives may care not only about their own time use, but also about the time use of their spouses. That is, socialization may go beyond the internalization of preferences for one's own gender-appropriate behavior and also instill a preference for gender-appropriate behavior by one's spouse. Such preferences imply that each spouse's utility function includes both spouses' time use.

Finally, if an individual is concerned with the "fairness" of the distribution of housework, then that individual's utility function must include both his or her own time use and that of the spouse. Sociologists have found that, although many wives spend considerably more time working (that is, doing market work plus housework) than their husbands, many wives consider the unequal division "fair." A concern with "fairness" implies that individuals have preferences regarding the time allocation of their spouse, as well as their own time allocation.[15]

Application: parents and homework

Time that parents spend helping children with homework provides a useful counterpoint to housework because the activity is more specific and the output is, at least arguably, measurable. There are two relationships that we might attempt to estimate:

1. The "production" relationship, in which the output is a measure of school performance and one of the inputs is parental time, and

2. The behavioral "supply" relationship, in which parents allocate their time among alternative uses (for example, helping with homework, watching television, cleaning house, or working for pay).

The production relationship determines the return on parental homework time, just as the wage rate determines the return on parental time on the job; hence, the production relationship plays a key role in estimating the behavioral supply relationship.

The statistical association between parental homework time and school outcomes has no clear interpretation, nor is it obvious a priori whether we should expect a positive or a negative correlation. To estimate the production relationship between school performance and parental homework time requires specifying and measuring the other inputs into school performance. Omitted inputs may lead to biased estimates of the effect of parental time, unless the omitted inputs are independent of parental homework time. For example, a problem may arise if "good parents" spend more time on homework and also spend more time talking with their children at dinner. If dinner conversation affects school performance and we fail to measure dinner conversation, then our estimate of the effect of homework time will be biased, reflecting not only the effect of parental homework time, but also the effect of the correlated portion of dinner conversation. In order to obtain an unbiased estimate of the effect of parental homework time, we need data on all of the other variables that determine school performance, except those that are independent of parental homework time. These other variables are likely to include measures of the child's ability and measures of the parents' ability and education.

To estimate the production relationship between school performance and parental homework time also requires recognizing that parental homework time reflects parental time allocation decisions. Estimates based on the implicit assumption that parental homework time is randomly assigned to children are likely to be biased. Instrumental variables, a standard technique for dealing with this type of endogeneity, require deciding on appropriate instruments and collecting data on them.

Suppose that, after estimating the production relationship, we want to estimate the behavioral supply relationships describing the allocation of parental time among alternative activities. To estimate this behavioral relationship requires specifying competing uses of time (for example, helping other children with homework, cleaning house, or working for pay) and the returns associated with these activities. The presence of other children in the household may represent additional demands on parental time; the presence of other adults, on the other hand, increases the supply of adult time potentially available for meeting those demands.

IN SUM, A THEORETICAL FRAMEWORK for time-use research has

three components: technology, preferences, and intrahousehold allocation. Household technology specifies the constraints, other than market constraints, that define the household's feasible set. Because of the importance of process benefits, the specification of household technology must allow for joint production. Individual preferences specify the objective functions individuals seek to maximize; interdependent preferences are likely in two-person households. An intrahousehold allocation rule, perhaps derived from an explicit bargaining model, determines the division of benefits and burdens within the household. On one crucial issue, however, the theoretical framework provides no guidance: theory does not identify the empirical counterparts of the "commodities" that are produced by the household technology and that enter individuals' utility functions.

To estimate household technology, researchers need data on all outputs and all inputs. For instance, if we want to estimate the effect on children's reading comprehension of a parent reading to them for an additional hour a week, then we need a measure of output (for example, of reading comprehension or improvement in reading comprehension). This reading comprehension example suggests two general lessons. First, output data imply measurable commodities, and measurable commodities imply narrowly defined commodities. Broad global categories such as "child quality" are unlikely to be measurable. The second lesson relates to the choice of inputs. Although estimation might be easier if some children were randomly assigned to treatments with a lot of reading and others assigned to treatments with only a little, data are not generated by random assignment. Too often, however, data are analyzed as if they were generated that way, even though such an analysis is likely to produce misleading estimates. Omitted variables are the obvious problem: if parents who read more to their children also talk more with their children, and if talking with children improves their reading comprehension, then analyzing the data as if reading were a randomly assigned treatment will overestimate the reading effect by attributing to it the effects of correlated omitted variables.

To summarize, estimating household technology or the behavioral relationships determining time allocation among activities requires time-use data, but time-use data alone are not enough. At a 1997 conference in Washington, DC, F. Thomas Juster, a leading authority on the analysis of time-use data, rightly disparaged time-use surveys that merely "collect dependent variables." He is clearly right. Indeed, if time-use surveys collect only time-use data, then time-use researchers can do no more than regress one endogenous variable on another. □

Notes

ACKNOWLEDGMENT: I am grateful to the John D. and Catherine T. MacArthur Foundation for financial support and to Donna Ginther and Anne Winkler for interesting and useful conversations, but I alone am responsible for the views expressed.

[1] Time-use data also are required to construct national product accounts that reflect nonmarket as well as market activity; that, however, is not the subject of this article.

[2] Gary S. Becker, "A Theory of the Allocation of Time," *Economic Journal*, September 1965, pp. 493–517; reprinted in Gary S. Becker, *The Economic Approach to Human Behavior* (Chicago, University of Chicago Press, 1976), see especially p. 91.)

[3] Robert T. Michael and Gary S. Becker, "On the New Theory of Consumer Behavior," *Swedish Journal of Economics*, December 1973, pp. 378–96; reprinted in Becker, *Economic Approach.*

[4] Becker, *Economic Approach*, p. 147.

[5] Gary S. Becker, *A Treatise on the Family* (Cambridge, MA, Harvard University Press, 1981 (enlarged ed., 1991)), p. 8.

[6] *Ibid.*, p. 24.

[7] Robert A. Pollak and Michael L. Wachter, "The Relevance of the Household Production Function and Its Implications for the Allocation of Time," *Journal of Political Economy*, April 1975, pp. 255–77; quote from p. 273.

[8] See Pollak's discussion of "What is a good?" in his comment on the Boskin Commission's proposals in Robert A. Pollak, "The Consumer Price Index: A Research Agenda and Three Proposals," *Journal of Economic Perspectives*, winter 1998, pp. 69–78; quote from p. 74.

[9] Pollak and Wachter, "The Relevance of the Household Production Function," p. 265.

[10] *Ibid.*, p. 270.

[11] F. Thomas Juster and Frank P. Stafford, "The Allocation of Time: Empirical Findings, Behavioral Models, and Problems of Measurement," *Journal of Economic Literature*, June 1991, pp. 471–522; see especially pp. 492, 495.

[12] See Marilyn Manser and Murray Brown, "Marriage and Household Decision-Making: A Bargaining Analysis," *International Economic Review*, February 1980, pp. 31–44; Marjorie B. McElroy and Mary J. Horney, "Nash-Bargained Household Decisions: Toward a Generalization of the Theory of Demand," *International Economic Review*, June 1981, pp. 333–49; and Shelly Lundberg and Robert A. Pollak, "Bargaining and Distribution in Marriage," *Journal of Economic Perspectives*, fall 1996, pp. 139–58.

[13] Beth Anne Shelton, *Understanding the Distribution of Housework between Husbands and Wives* (Department of Sociology and Anthropology, University of Texas, Arlington, TX, 1999), is a useful introduction to the gender display literature.

[14] From a formal standpoint, interdependent preferences imply that each spouse's consumption and time-use pattern is a household public good.

[15] See Constance T. Gager, "The Role of Valued Outcomes, Justifications, and Comparison Referents in Perceptions of Fairness Among Dual-Earner Couples," *Journal of Family Issues*, September 1998, pp. 622–48; and Herbert L. Smith, Constance T. Gager, and S. Philip Morgan, "Identifying Underlying Dimensions in Spouses' Evaluations of Fairness in the Division of Household Labor," *Social Science Research*, September 1998, pp. 305–27. These articles discuss the literature on fairness and suggest that a wife evaluates the fairness of the division of labor in her marriage relative to what she observes in other marriages, comparing herself to other wives rather than to her husband.

Measuring how people spend their time: a time-use survey design

Methodological decisions concerning the mode, follow-up probes, coding schemes, and simultaneous activities all have far-reaching implications

Linda L. Stinson

Time-use studies typically have a single focus: to study the frequency and duration of human activities. For example, time-use surveys may ask respondents to report everything they did during a 24-hour period along with some indication of the starting and stopping times of those actions. This chronological reporting procedure avoids many pitfalls that other survey estimation procedures encounter and is less subject to distortion due to "social desirability bias." But there are many methodological considerations to take into account when designing a time-use survey. Decisions concerning reporting procedures and mode of data collection may influence data quality. Likewise, the choice of follow-up probes and the treatment of simultaneous activities can determine the amount of information available for accurate and reliable coding of activities.

This article describes the methodological decisions that the BLS time-use working group faced when designing a possible time-use survey.[1] It also presents the methodological choices that the group made and provides the rationale for those selections.

While time-use research (that is, the actual enumeration of the activities people perform) may have originated within the social sciences and the time management domain of the business world, international governments have also been quick to recognize the value of this information. A number of their policy-related issues can be addressed with time-use data. Consequently, the question is not so much *"why?"* time-use data should be collected, but rather, *"how?"* it can be collected well.

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Methodological considerations

A single focus upon "a day in the life of a respondent" is simple enough in principle. However, as with any other survey design, there are a number of different approaches that may be followed when collecting time-use data, each with its accompanying ramifications on data appearance and quality.

Moreover, time-use research may be rather unique in the world of social science analysis in that it has a long history of international cooperation and is often animated by researchers who want to make cross-national comparisons.[2] Consequently, certain standards and procedures for time-use data collection have been established and are generally recognized within the field as successful practices.[3] However, within this normative framework, there still remain several methodological options to be considered and challenges to be confronted.

Mode

Since time-use research began during the era of face-to-face interviews and continues to be popular in localities where telephone data collection is non-normative, it is not surprising to discover the widespread popularity of the paper diary. A "time clock" diagram is an example of one early attempt to use a paper and pencil format to collect time-budget information in the United States. (See exhibit 1.) The U.S. Department of

Exhibit 1. The time clock format used to collect time-budget information

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF HOME ECONOMICS
WASHINGTON, D.C.

DAILY TIME RECORD
OF HOMEMAKER

Name .....

Address .....

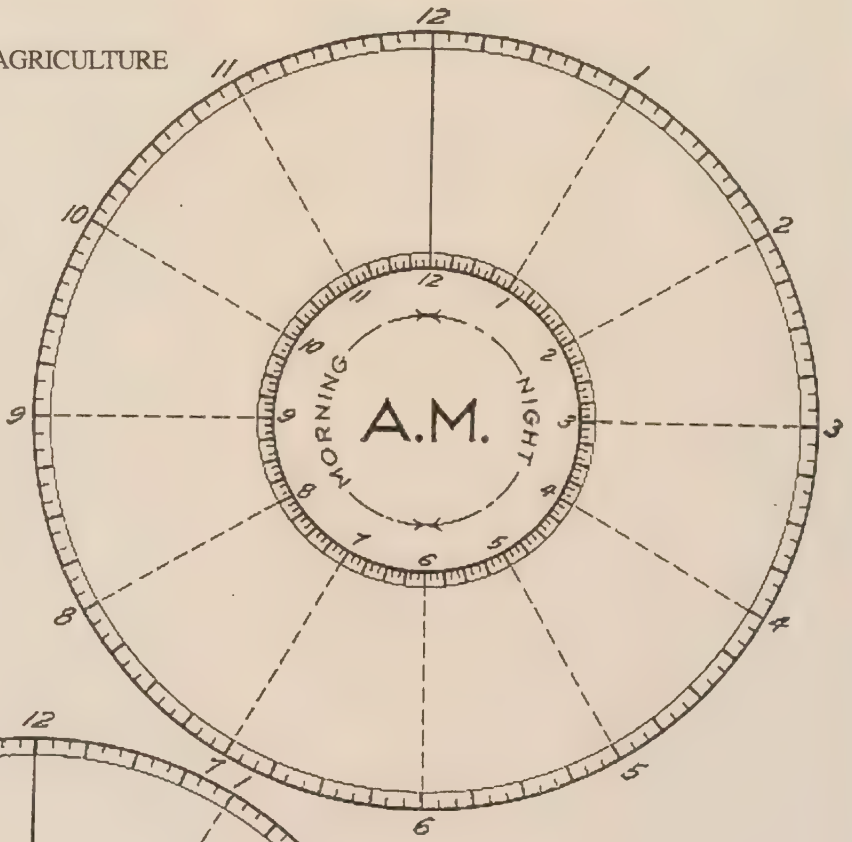
.....

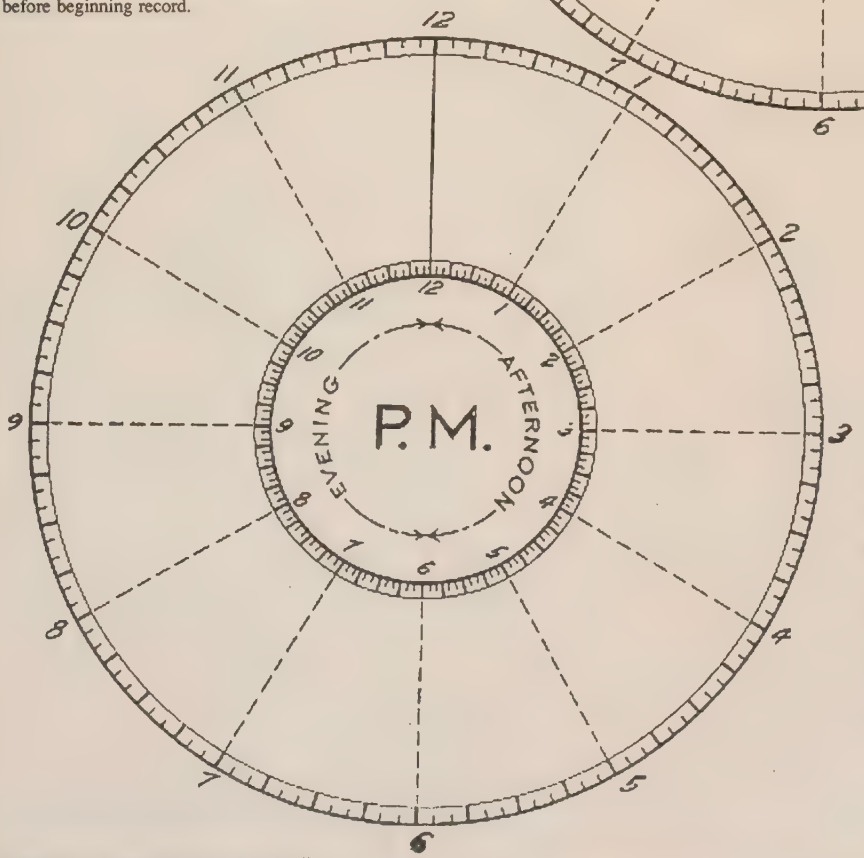
Day of week .....

Date ....., 192

Each small space between the hours on the "clock" represents five minutes. Begin this day's record by drawing a line on "A. M. clock" from outer to inner circles at time of arising. At end of time given to the next activity draw another line, and in space between lines describe this activity. Continue in this way changing to "P. M. clock" at noon and accounting for all of the 24 hours of the day.

Read separate "Instructions" carefully before beginning record.





NUMBER OF PERSONS

	Lodging	At meals (including lunches—put up)		
		Breakfast	Dinner	Lunch or supper
Family				
Guests				
Boarders and roomers				
Household help				
Farm help				
TOTAL				

NOTES

SOURCE: U.S. Department of Agriculture.

Agriculture used this method in the 1920s and 1930s to create a daily time record for homemakers.[4] Participants were instructed to draw lines on the clock diagram to mark the beginning and ending times of their activities and to describe the activity inside the intervening spaces. Time diaries have continued to evolve through the years, and presently, we find examples such as the time diary prepared by the Australian Bureau of Statistics. It consists of five questions at the top of the page and 5-minute time slots down the first column. (See exhibit 2.)

Although the look of the time collection instrument has evolved, in all cases, the heart of the time diary is preserved: a verbatim description of the day's activities is collected along with an assignment of the approximate starting and stopping times for each activity, recorded either in free format or in fixed 5- to10-minute intervals.

In both Canada and the United States, the drive for cheaper, faster, and easier data collection has generally resulted in a great push for surveys to be telephone-administered and, ultimately, to become computerized. In line with this trend, both the "1985 American's Use of Time Project"[5] and the Canadian General Social Survey[6] have demonstrated that in North America, information about the use of time can be successfully collected over the telephone. Because our proposed sampling frame included a ready-made list of telephone numbers,[7] our working group followed the North American precedent and opted for a computerized, telephone format.

The option to collect time-budget information by telephone does have certain implications. One implication is that, when information is collected by telephone from centralized calling centers, there are new opportunities to monitor interviews and improve the quality of the entire data collection process. In any survey situation, the capacity to increase the precision, efficiency, and accuracy of data collection is extremely valuable. It may be even more valuable for time-use interviews because they are built upon the collection of verbatim accounts of activities elicited from respondents by interviewers using skills that may best be referred to as "flexible interviewing."[8] A second implication is that telephone data collection almost certainly precludes the possibility of collecting diaries from an entire household due to the difficulties inherent in trying to make contact with all household members on a designated day.[9] While some statisticians argue that the design effects produced by collecting clusters of activities within households are detrimental to survey standard errors and should be avoided, other social scientists argue that the social dynamism produced by the intertwining of household members' activities demands that households be studied *in toto*.[10] At any rate, it seems most likely that any study design requiring data collection from an entire household would not find a method of telephone collection optimal.

Follow-up probes

Throughout the years, it has become increasingly clear that accurate coding and the complete analysis of activities requires more than a simple verbatim record of their content. Other elements are deemed essential for providing the context necessary for interpreting these verbatim accounts. This additional information generally includes: the locations where activities occurred, the identities of other persons who were present or participating, and other activities that might have been performed simultaneously.[11]

The classic example typifying the importance of such additional information is found in the activity "eating." Based upon contextual circumstances, the classification of the activity "eating" can range from: *personal care* when the activity is performed alone or with household members exclusively, *work time* when eating on the job or during work-related functions, or *socializing* when food is consumed in a social situation or location with nonhousehold members.[12] While it may be possible to glean some contextual information from preceding activities (for example, eating in a restaurant is preceded by travel to the restaurant), nevertheless, this information may not always be sufficient (for example, eating alone in a restaurant, versus joining friends at a restaurant to socialize).

In many paper diaries, additional information about time spent with others (immediate family members, relatives, coworkers, schoolmates, and acquaintances) is recorded by checking an appropriate column. Some studies suggest, however, that when respondents are instructed to complete their own time diaries, the information about the presence of other people is not always recorded correctly. Finland's nationwide time-use study, conducted by the Central Statistical Office of Finland in 1979, found that only a third of the respondents correctly filled in the column identifying time spent "in the company of others." In many cases, respondents only reported the time actively involved with others in mutual activities and failed to identify time spent passively in the company of others. Many others made vague or careless entries rendering the data unclear.[13] However, telephone data collection provides interviewers with the opportunity to probe for complete and accurate answers.

Following the example of Statistics Canada's telephone administered time-use interview, the working group concluded that after each activity reported, interviewers should ask either, *"Where were you?"* or *"Were you still... ?"* For each activity, there would be only one answer collected and it would be recorded in one of the following categories:

Place:

1. at respondent's home
2. at workplace
3. at someone else's home
4. at other place (includes park, neighborhood)

Or in transit:

5. in car (driver)

Exhibit 2. An example of a time diary used by the Australian Bureau of Statistics

Day 1

6 a.m. – 9 a.m.

	1 **What was your main activity?** (Please record all activities, even if they only lasted a few minutes)	2 **Who did you do this for?** (e.g. self, family, work, friend, a charity, the community)	3 **What else were you doing at the same time?** (e.g. childminding, watching television, listening to the radio)	4 **Where were you?** (e.g. at work, home, on a bus, driving a car)	5 **Who was with you at home, or with you away from home?** (e.g. no-one, family, friends)
6:00					
.05	Sleep	Self	Passive child care	Home	Family
.10	↓	↓	↓	↓	↓
.15	↓	↓	↓	↓	↓
.20	Toilet	↓	↓	↓	↓
.25	Had shower	↓	↓	↓	↓
.30	↓	↓	↓	↓	↓
.35	Got dressed	↓	↓	↓	↓
.40	Put on a load of washing	Family	↓	↓	↓
.45	Made breakfast	↓	Talked to family	↓	↓
.50	↓	↓	↓	↓	↓
.55	Ate breakfast	Self	Read newspaper	↓	↓
7:00	↓	↓	↓	↓	↓
.05	↓	↓	↓	↓	↓
.10	Hung washing on line	Family	Nothing	↓	↓
.15	↓	↓	↓	↓	↓
.20	Dressed children	Children	Talked to children	↓	↓
.25	↓	↓	↓	↓	↓
.30	Brushed hair, teeth, etc.	Self	Nothing	↓	↓
.35	↓	↓	↓	↓	↓
.40	↓	↓	↓	↓	↓
.45	Packed children's bags	Children	Said goodbye to partner		
.50	Drove children to my	↓	Talked to children	Driving car	2 children
.55	mother's house	↓	↓	↓	↓
8:00	↓	↓	↓	↓	↓
.05	↓	↓	↓	↓	↓
.10	Greeted my mother	Self	Organising children	Mother's	Children &
.15	Said goodbye to children	↓	Nothing	↓	mother
.20	Drove to work	↓	Listening to radio	Car	No-one
.25	↓	↓	↓	↓	↓
.30	↓	↓	↓	↓	↓
.35	Parked car & walked to work	↓	Nothing	Street	↓
.40	Working	Work	↓	Work	Workmates
.45	↓	↓	↓	↓	↓
.50	↓	↓	↓	↓	↓
.55	↓	↓	↓	↓	↓
9:00	↓	↓	↓	↓	↓

SOURCE: Australian Bureau of Statistics, Time Use Survey Australia User's Guide, 1992, ABS Catalogue No. 4150.0 (Canberra, Commonwealth Government Printer).

6. in car (passenger)
7. walking
8. in bus or subway (includes street cars, commuter trains or other public transit)
9. on bicycle
10. other (for example, airplane, train, motorcycle)

Also following the Statistics Canada model, for each activity, the interviewer would then ask either, *"Who was with you?"* or *"Were you still...?"* to get a complete list of other persons present. Interviewers would use the following list to record all that apply:

1. Alone
2. Spouse/partner
3. Child(ren) of the household under 15 years
4. Parent(s) or parent(s) in-law in the household
5. Other member(s) of the household (including children ages 15 or older)
6. Child(ren) of the respondent less than 15 years old outside the household
7. Child(ren) of the respondent, 15 or older outside the household
8. Parent(s) or parent(s) in-law outside the household
9. Other family member(s) outside the household
10. Friend(s)
11. Other persons(s)

Taken together, these additional probes for "locations" and "other persons present" should provide enough information for accurately identifying and coding social situations and any ambiguous events. Beyond even that, however, these responses provide an opportunity for further probing, should a specific interest ever arise. For example, if there were interest in having a supplemental "child-care module" attached to the time-use interview, response number 3 (that is, children under 15 in the household) to the *"Who was with you?"* question could be programmed to trigger additional child-care questions attached either to the specific activity where the flag was evoked or at the end of the completed 24-hour activity report as a separate battery of questions. Likewise, the location "workplace" could be used to trigger additional "work schedule" questions or an "in-transit" response could be used to signal additional questions on "commuting patterns." The possibilities are almost limitless and confirm the importance of this additional contextual information.

Finally, the BLS working group concluded that a final contextual probe should be added at the end of the interview to identify all the activities for which respondents were paid.[14] The exact wording of the question will, no doubt, need to be tested to assure us that it also helps respondents identify "self-employed activities." But despite the need for additional clarification of the wording, the fundamental necessity for some type of "paid work" question was abundantly clear during our 1997 time-use pilot test. Without it, we were not able, in all cases, to separate "market" from "nonmarket" work, a coding distinction that will, most likely, always be of paramount interest to BLS.

Coding schemes

Throughout the world, most of the currently used activity classification systems have evolved from the original structure developed by Alexander Szalai for the Multinational Time-Use Project of the 1960s. These activity codes are typically arranged into mutually exclusive behavior groups that cover all aspects of human activity. These primary divisions of behavior generally include:

- Personal care activities
- Employment related activities;
- Education activities
- Domestic activities
- Child care activities
- Purchasing goods and services
- Voluntary work and care activities
- Social and community activities
- Recreation and leisure
- Travel time

Not only do the current classification systems attempt to reflect meaningful distinctions between specific activities for the purposes of tabulation, but they also try to prioritize those distinctions in such a way that they provide a solid conceptual basis for the analytic endeavor.

One such temporal typology, developed by Dagfinn Ås and based on the ideas of V.D. Patrushev, identifies all time as either[15]:

- Necessary time–serving basic physiological needs
- Contracted time–related to gainful employment and school attendance
- Committed time–to which one is obligated, but for which a substitute service could be purchased
- Free time–which remains when the other three types have been accounted

Within these levels of "time commitment," all the primary divisions of activities are clustered and interpreted. Perhaps due to the cohesion of this system, time-use studies from all over the world have been analyzing and reporting their results, using this structural framework. Such a typology should

also assist coders in distinguishing between activities that may have multiple layers of meaning and which may not be readily identifiable in their classification.

Internationally, there are several existing coding schemes that are very appealing. Because they have evolved from a common source, they share many similarities. By selecting an existing classification system, we would benefit from their previous tests and code revisions, thereby saving time and money. International coding consistency is also necessary for cross-national comparisons. The following classification systems were especially appealing to the working group.

Eurostat classification system. Iiris Niemi of Statistics Finland developed the first version of the Eurostat coding list in 1993 and it was adopted for the Eurostat Harmonized European Time-Use Survey."[16] Since that time, several workshops and expert panels have discussed the Eurostat coding system, and refinements were made in 1995. Further refinements and adaptations have been made in close collaboration with coding experts in England, Finland, and Sweden. Beyond the effort invested in continuous improvement, the Eurostat system offers the advantage of direct international comparability. To date, eighteen countries[17] have participated in the "Harmonized Time-Use Project" and share the common coding scheme at the one- and two-digit levels, while maintaining the opportunity for country-specific adaptations at the third-digit level.

Australian classification system. This system has the advantage of having been tested and critiqued since 1992, resulting in a number of revisions in 1997. The overall structure is very similar to the Eurostat system and provides international comparability, while attempting to adjust the uneven distribution of time within the major categories by redefining some of the primary categories. Some of the most interesting revisions include:

- Combining "domestic activities," "child or adult care," and "purchasing" together into a single domain of "household and family care," reflecting the common thread of "time committed to the household"
- Separating "free time activities" into the four clearly distinguishable subcategories: social life and entertainment, sports participation, hobbies and games, and mass media
- Disentangling the category of "voluntary work" so that "committed activities" and "free time activities" are more easily distinguished, thereby allowing "unpaid work activities" to be more accurately identified

United Nations international trial classification system. In the autumn of 1997, the United Nations Statistical Division convened an expert panel of time-use researchers to design a "trial classification system" that would provide an international coding scheme for analyzing and understanding the use of time in all different societies. The proposed classification system differs from other existing systems mainly in three ways:

- The basic framework for distinguishing the economic nature of activities is the System of National Accounts
- All nonmarket production has been brought together into a single one-digit category and then further specified at the two- and three-digit levels.
- "Paid work" activities, which are normally undefined at the two- and three-digit level, have been given more detailed breakdown.[18]

While aiming for international comparability, the main feature of the UN system is clearly its economic conceptualization. This classification is useful because it could be helpful in assessing national labor inputs into production of goods and services, compiling household satellite accounts, and analyzing time use within the framework of the System of National Accounts. This system was designed to be especially useful for developing countries that may lack labor force or expenditure surveys and may need to use a single national survey to address many different research and policy issues. It seems less likely to be adopted by other countries that already have years of experience with their own time-use coding schemes, as well as fully developed national statistical survey programs to address specific research needs.

Assessment

While other national classification systems are similar to these three systems (because they all share a common origin), the Australian, Eurostat, and United Nations systems stand out. The Australian system is impressive because it seems to have developed the most—from a simple structure to be used for the tabulation of activities, into an analytically cohesive and theoretically strong "explanation" of time use. The Eurostat system benefits from the breath and scope of its application throughout the unified Europe. The United Nations system is appealing because of the economic foundation on which it rests.

After considering each of these coding schemes, our working group recommended a slightly modified version of the Australian system because it provides international coding comparability, while redefining some of the primary categories to be more logically consistent with the four-fold typology of time. Our design shows minimal changes at the level of first-digit codes, such as expanding "child care" to include "care of all household dependents, including children, the elderly, and the disabled." At the two-digit level, there would be a few

codes added to provide additional classification for the expanded one-digit categories. Finally, at the three-digit level, useful codes from other international systems would be added to provide additional clarifications.

Simultaneous activities

One of the most difficult problems all time-use researchers must confront is how to record, with accuracy and completeness the pulsing dynamism of human activity. As Alexander Szalai pointed out, there are practical limits to how well this can be done. While there are many "parallel and criss-crossing threads of activity," we are generally constrained by the linear flow of time itself to view activities as predominantly sequential in nature, rather than as pulsating energetic moments extending backwards from and forwards into their surrounding activities.[19] As he wrote:

> ...for whatever level of accuracy one may reach, still more minute observations could possibly prove that some activities which seemed to be carried out simultaneously were in effect alternating with one another, or that some activities which seemed to be performed consecutively were factually overlapping to some extent. Nevertheless, any time-budget study which does not grapple in some way with the problem of recording secondary or parallel activities is essentially unable to give a balanced account of the great variety of activities which fill up everyday life.[20]

Typically, time-use studies provide respondents with an opportunity to report at least one "simultaneous" or "secondary" activity in parallel with each sequential activity mentioned. Such studies find that respondents spend as much as 3 to 4 hours per day, doing more than one activity at a time.[21] Child-care activities, in particular, seem especially subject to simultaneity. However, as mentioned earlier in the discussion of follow-up probes, when respondents are left to record their own activities in paper diaries, the collection of simultaneous activities often suffers.[22]

The1997 time-use pilot test found that most reports of simultaneous activities were coded either as social or personal care activities or were classified as "nonmarket work." On average, our respondents reported nearly 2 hours of either social or personal activities and an additional hour of nonmarket work occurring simultaneously with other activities per day. Consequently, we recognize the importance of providing a forum whereby respondents are able to report activities that might have been performed in tandem with other actions. This information would be obtained by asking respondents, *"Were you doing anything else during that time?,"* after recording the starting and stopping times, the location, and other persons present for each recorded activity.[23] Standardizing the collection of simultaneous activity through scripted questions administered by interviewers would avoid some of the measurement difficulties encountered by the self-administered paper diaries. It also would avoid undue respondent burden by not asking respondents to provide a subjective assessment of how they think their parallel activities should be apportioned for analytic purposes. □

Notes

AKNOWLEDGMENT: The author thanks Susan Chapman of the Reference Section at the National Agricultural Library in Beltsville, Maryland for locating, reproducing, and sharing the early time diary from the Department of Agriculture.

A Bureau of Labor Statistics working group was established to examine the feasibility of conducting a survey on how Americans spend their time. Members of the group include: Diane Herz, Michael Horrigan, Mary Joyce, Ed Robison, Jay Stewart, and Linda Stinson. This article contains material from the report prepared by the working group, along with additional material researched by the author and presented in a paper at the 1999 Joint Statistical Meetings in Baltimore, Maryland.

[1] In any survey design process, there are always a series of methodological decisions to be made. As the BLS working group advanced into the design process, it made specific methodological decisions along the way. These decisions were made as part of the design process only.

[2] Alexander Szalai, ed., *The Use of Time: Daily Activities of Urban and Suburban Populations in Twelve Countries* (The Hague, Mouton, 1972).

[3] Andrew Harvey, "Guidelines for Time Use Data Collection," *Social Indicators Research, vol.* 30, 1993, pp. 197–228.

[4] Early time diary records are available from the Department of Agriculture, National Agricultural Library, Beltsville, MD.

[5] The 1985 American's Use of Time Project was headed by John Robinson and conducted by the Survey Research Center at the University of Maryland. They also used telephone data collection for their 1995 time-use survey sponsored by the Environmental Protection Agency. See John Robinson and Geoffrey Godbey, *Time for Life. The Surprising Ways Americans Use Their Time* (University Park, PA, The Pennsylvania State University Press, 1997). Also, see John P. Robinson and Ann Bostrom, "The overestimated workweek? What the time diary measures suggest," *Monthly Labor Review*, 1994 August, pp. 11–23.

[6] Judith Frederick, *As Time Goes By. Time Use by Canadian,* Catalogue 89–44E (Ottawa, Ontario, Statistics Canada, 1995).

[7] Our proposed sampling frame is the list of month-in-sample eight participants in the Current Population Survey.

[8] Michael Schober and Frederick Conrad, "Conversational Interviewing," *Public Opinion Quarterly,* vol. 61, 1997, pp. 576–602.

[9] A "designated day" is statistically selected and assigned so that the activities recorded in time-use studies will be representative. This is necessary in order that activities, such as those performed outside the home, are not overestimated.

[10] Jose Geurts, and Jos De Ree, "Influence of Research Design on Time Use Estimates," *Social Indicators Research,* vol. 30, 1993, pp. 245–84.

[11] The final report issued by the Expert Group convened by the

United Nations Statistical Division to discuss a "Trial International Classification for Time-Use Activities" cited "for whom," "with whom," and "location" as the important context variables that should be collected in time-use studies (United Nations Secretariat, 1997).

[12] Angie Becher, "Identifying Non-Market Work: A Look at Coding Issues." Paper presented at the Time Use, Non-Market Work, and Family Well-being Conference, co-sponsored by the Bureau of Labor Statistics and the MacArthur Network on the Family and the Economy, Washington, DC, Nov. 20–21, 1997.

[13] Iiris Niemi, *The 1979 Time Use Study Method,* no. 91 (Helsinki, Central Statistical Office of Finland, 1983).

[14] During the 1997 BLS pilot test, we tested the following "paid work" question: "Of all the activities that you did yesterday, did you get paid for any of them?" The note to interviewers instructed them to include only work that was paid to respondents in the form of money (for example cash and checks) and to exclude bartering or exchange services.

[15] Dagfinn Ås, "Studies of Time-Use: Problems and Prospects," *Acta Sociologica,* vol. 2, 1978, pp. 125–141; Dagfinn Ås, "Designs for Large Scale Time-Use Studies of the 24-Hour Day," *It's About Time,* International Research Group on Time Budgets and Social Activities, 1982; and Iiris Niemi, Salme Kiiski, and Mirja Liikkanen *Use of Time in Finland 1979* (Helsinki, Central Statistical Office of Finland, 1986).

[16] Niemi, *The 1979 Time-Use Method.*

[17] These countries participating in the 1996–97 pilot test include Finland, Sweden, Luxembourg, Ireland, Italy, Spain, Portugal, Greece, United Kingdom, Albania, Bulgaria, Hungary, Poland, Slovenia, Lithuania, Estonia, Latvia and the Former Yugoslav Republic of Macedonia. France and Germany also have expressed interest in joining the "Harmonized Project" and are negotiating possibilities for financing their participation. Likewise, Austria, Denmark, and the Netherlands are engaged in ongoing discussions, but have not yet reached decisions about future participation.

[18] United Nations Secretariat, Statistical Division, *Expert Group Meeting on Trial International classification for Time-Use Activities,* Report of the meeting held in New York, Oct. 13–16, 1997.

[19] Szalai, *The Use of Time,* 1972.

[20] *Ibid.* p. 3.

[21] International Research and Training Institute for the Advancement of Women, *Measurement and Valuation of Unpaid Contribution, Accounting Through Time and Output* (Santo Domingo, Dominican Republic, United Nations INSTRAW, 1995).

[22] In the minutes of the November, 1998 meeting of the Eurostat Task Force on their "Time Use Survey" pilot tests, the recommendation was made that secondary activities should not be included in satellite accounts because of the lack of data quality and the variability in reporting simultaneous housework activities between countries. Our survey hopes to avoid this pitfall by standardizing the collection of simultaneous activity through scripted questions administered by interviewers.

[23] The dilemma that follows upon the collection of secondary activities is the problem of constraining everything to total into a 24-hour day for analytic purposes. One approach would be to ask respondents to somehow apportion "weights" to any activities performed simultaneously so the overlapping time can be re-distributed. Due to the magnitude of the respondent burden and issues of measurement error, we have decided not to follow this approach. Instead, we are investigating *post hoc* analytic procedures that would take advantage of aggregate information to create utility functions that would supply the necessary weights.

Noneconomic fluctuations in hours and earnings data

BLS hours and earnings series are subject to noneconomic calendar-related fluctuations caused by response error in semimonthly and monthly reports and the processing limitations of the payroll survey

Jurgen Kropf
and
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The Current Employment Statistics (CES) survey collects payroll information from a sample of about 390,000 business establishments across the Nation and provides monthly estimates of nonfarm wage and salary employment, average weekly hours, and average hourly earnings. The month-to-month movements in these series are closely watched by policymakers, forecasters, and other analysts as timely indicators of the overall strength and direction of the Nation's economy. In recent years, some CES data users have inquired about the possibility of noneconomic, calendar-related fluctuations in the hours and earnings series.

In 1997, researchers at the Bureau of Labor Statistics established a correlation between over-the-month changes in the hours and earnings series and the number of weekdays in a calendar month. An initial review of the hours and earnings series revealed that the fluctuations were concentrated in the service-producing industries—especially in finance, insurance and real estate—and that they could be traced to survey reporters with a high proportion of salaried employees and semimonthly or monthly payrolls. These findings led to an examination of how these reports are treated within the CES production system. The examination revealed that both response error and the "normalization" process used to convert reports with other-than-weekly pay periods to the weekly equivalent were contributing to the noneconomic fluctuations in the hours and earnings series.

This article describes the research methods used and the results obtained in this study. Several methods were used to identify and measure the noneconomic fluctuations. First, the microdata were tested for statistical differences between reported hours and earnings for months with different numbers of workdays. Second, reporters were contacted directly in order to clarify their reporting practices—specifically, their methods of calculating the hours and earnings data that they provided on the survey form. Third, the CES production process was simulated with certain modifications, including the elimination of problematic reports and the use of different correction factors to normalize the hours and earnings data. Finally, using the REGARIMA statistical technique, models were developed to measure and adjust for the effect of the length of pay period on the hours and earnings series.

To correct the noneconomic fluctuations in the hours and earnings series, the system should be modified to convert each report appropriately, depending on the reporting practice of the respondents. In addition, respondents should be educated on the proper method of reporting hours in unusual cases, such as when the length of pay period is 11 or 12 days. Also, ideally, hours and earnings data should be collected separately for workers paid by the hour versus those paid by salary. The implementation of these corrective measures would require considerable time and resources, however, and thus could only be accomplished as a long-term project. In the short run, the use of

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REGARIMA models continues to be the most feasible and effective method of correcting the fluctuations, although currently only the seasonally adjusted hours and earnings series are corrected.

The Current Employment Statistics survey

In the CES survey, average weekly hours and average hourly earnings data are not collected directly. Instead, respondents report their gross payrolls and the corresponding total hours paid for production workers, construction workers, and nonsupervisory workers. (Henceforth, these three types of workers will be referred to as production workers.) Data items refer to persons who worked during, or received pay for, any part of the pay period that includes the 12th of the month.

Average weekly hours are computed as

$$(1)\quad AWH = WH/PW,$$

where

WH = total worker hours,
PW = total production workers.

Average hourly earnings are given by

$$(2)\quad AHE = PR/WH,$$

where

PR = gross payroll (for production workers),
PW = total production workers.

Data are reported for the pay period that includes the 12th of the month, with respondents indicating the length of the pay period as follows:

Weekly	= 5-day pay period
Biweekly	= 10-day pay period
Semimonthly	= 10- to 11-day pay period
Monthly	= 20- to 23-day pay period.

When respondents report data for pay periods of more than 1 week in duration, the reports must be "normalized"—that is, the payroll and hours data must be converted to 1-week equivalents. For this purpose, conversion factors or length-of-pay-period (LP) codes are applied to the reported figures, using the modified formulas

$$AWH = (LP_D * WH_R) / PW,$$

and

$$AHE = (LP_D * PR) / WH_N,$$

where

LP_D =

1.0 when number of days (D) in pay period (PP) = 5,
.45 when D = 11 (semimonthly),
.50 when D = 10 (semimonthly or biweekly),
.45 when D = 11 (semimonthly),
.50 when D = 10 (semimonthly or biweekly),
.22 when D = 23 (monthly),
.23 when D = 22 (monthly),
.24 when D = 21 (monthly),
.25 when D = 20 (monthly),

WH_R = reported hours,
WH_N = normalized hours.

Test of microdata

The normalized microdata from the survey reports were analyzed in an attempt to identify problematic reports. The underlying assumption in the CES estimation process for average weekly hours and average hourly earnings is that respondents vary their reported payroll and hours data according to the number of days in their respective pay periods. This assumption is reasonable for respondents with predominantly hourly paid employees—these respondents are most likely to have accurate records on the number of hours for which their employees were paid.

But in cases in which the respondents have a high percentage of salaried employees who are paid a fixed amount for each pay period, the reported payroll figure does not vary by the number of days in a pay period, and a record of the actual number of hours paid may not be available. The reported number of total hours worked may reflect the fixed payroll and thus may not vary by the number of days worked either. As a result, when respondents with semimonthly or monthly pay periods report fixed work-hours and fixed payroll, the normalization procedure of the CES production system could introduce fluctuations for pay periods with varying numbers of workdays.

This hypothesis is translated into a test of the difference between two population means, namely

$$H_0:\ m_1 - m_2 = 0,$$

and

$$H_A:\ m_1 - m_2 < 0,$$

where

m_1 = population mean when D = 10, 20, and 21,
m_2 = population mean when D = 11, 22, and 23.

The test statistic is defined as

$$t = (y_1 - y_2) / s_p \sqrt{(1/n_1 + 1/n_2)},$$

where

y_1 = sample mean when $D = 10, 20$, and 21,
y_2 = sample mean when $D = 11, 22$, and 23,
n_1 = number of months in which $D = 10, 20$, and 21,
n_2 = number of months in which $D = 11, 22$, and 23,
s_p = estimated standard deviation s for m_1 and m_2,
$s_{1,2}$ = sample variances.

Note also that

$$s_p = \sqrt{[(n_1-1)s_1^2 + (n_2-1)s_2^2]/(n_1+n_2-2)}$$

for the rejection region, $\alpha = .025$, $df = n_1 + n_2 - 2$, and we reject H_0 if $t > t\alpha$.

The data tested were the calculated average weekly hours and average hourly earnings figures for each reporter, according to formulas (1) and (2) shown above. A reporter failing this means test (H_0 is rejected) is assumed to report fixed work-hours and payroll. By normalizing the reported data, the CES production system introduces the observed fluctuations into the data for these reporters.

Table 1 lists the distribution of reports by pay period and the percentage of reports failing the test for average weekly hours. The results of the means test indicate that nearly half of the semimonthly reports display significant differences in normalized work-hours between months with varying workdays per pay period. The table also shows that the majority of semimonthly (and hence, problematic) reporters are in the service-producing industries, with finance, insurance, and real estate having the largest share.

The results of the means test for hourly earnings are not as apparent as those for weekly hours. However, about 10 percent of semimonthly reports and 6 percent of the monthly reports display significant differences in normalized payrolls between months with varying numbers of workdays per pay period. The smaller number of reports testing significantly different for average hourly earnings can be best explained by recalling the procedure that the CES production system uses to calculate the hourly earnings figures:

$$AHE = (LP_{D,PP} * PR) / WH_N$$

The product $LP_{D,PP} * PR$ calculates the normalized payroll, which then is divided by the normalized work-hours. The same conversion factor (LP) is used to normalize both data elements. Therefore, for respondents who report fixed work-hours and fixed payroll, the division of the two data elements neutralizes the conversion factors and the resulting average hourly earnings series do not display the fluctuations introduced by the factors. Only the earnings series for those respondents who report fixed payroll figures but vary the number of reported work-hours according to the number of workdays per pay period display the fluctuations—in this case introduced by the conversion factor during the normalization of the payroll figures.

Respondents contact

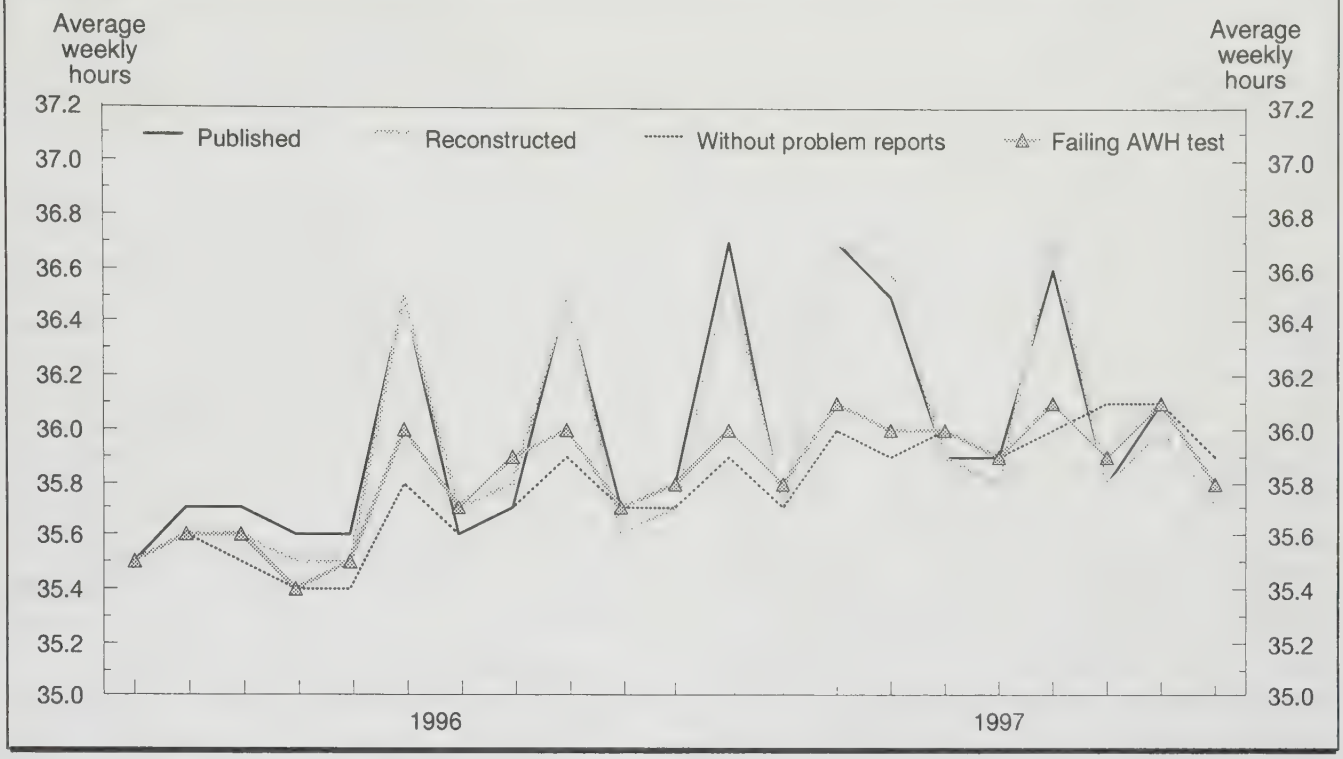
In an independent effort to confirm the results obtained from examining the microdata, a sample of 100 monthly and semimonthly respondents was selected and each was contacted by telephone to ask about how they report their hours and earnings data. Overall, there were 75 usable responses from the 100 sample cases. An important basic finding is that 53 of the 75—70 percent—had both salaried and hourly workers.

For their hourly paid workers, respondents stated that they used actual hours figures more than 90 percent of the time. For salaried workers, on the other hand, actual hours were available only 12 percent of the time. For the rest of the time,

Table 1. Distribution of reports failing means test for average weekly hours by pay period

Industry	All pay periods		Weekly pay periods		Biweekly pay periods		Semimonthly pay periods		Monthly pay periods	
	Total number of means test	Percent failing reports	Percent of total means test	Percent failing reports	Percent of total means test	Percent failing reports	Percent of total mean test	Percent failing reports	Percent of total reports	Percent failing means test
Total private	223,903	8.5	52.6	3.9	32.9	4.6	9.2	46.3	5.3	16.6
Mining	2,130	10.3	42.9	3.1	39.4	5.1	9.6	51.2	8.1	25.0
Construction	23,320	3.1	89.2	2.7	6.6	3.8	1.1	22.1	3.1	7.8
Manufacturing	48,763	5.6	74.2	4.5	20.2	4.9	3.0	32.2	2.6	12.1
Transportation and public utilities	11,660	8.7	36.2	3.2	44.1	3.2	11.9	42.1	7.7	14.1
Wholesale trade	17,939	10.4	47.6	3.5	35.1	4.6	10.4	52.4	6.9	24.7
Retail trade	49,231	6.5	53.3	3.0	36.6	4.7	6.3	41.1	3.8	15.2
Fire, insurance, and real estate	15,078	20.1	16.9	2.9	48.0	6.2	24.2	58.5	10.9	22.7
Service	55,782	11.6	32.8	3.3	44.3	4.4	15.7	45.3	7.2	15.1

Chart 1. Various average weekly hours series for finance, insurance, and real estate



the hours figures were estimated using some fixed formula or a constant value. Respondents said that they vary the number of hours that they report with the number of weekdays in a month for about 80 percent of their hourly paid workers and for only about 20 percent of their salaried workers. The results are similar for the payroll figures except that a higher percentage of respondents stated having actual payroll data for salaried workers—about 50 percent, compared with the 12 percent having actual hours data.

The overall conclusion from the data is that the CES conversion practices generally are appropriate for hourly paid workers, but not for salaried workers. Because most respondents have both types of workers, collecting separate reports for hourly and salaried workers would be better, but that would require far-reaching changes to CES production and data collection systems. From the point of view of the respondents, collecting separate reports may be quite feasible—77 percent of the respondents indicated that they could provide separate payroll figures for hourly and salaried workers.

The responses from telephone contacts were compared with the results from the means test and are shown in the following tabulation. In about 70 percent of the cases, the telephone survey answers supported the findings of the means tests for average weekly hours. For example, a report failed the average weekly hours means test and the respondent confirmed that they did in fact report a constant number of hours. For average hourly earnings, the comparison between the means test and the telephone survey answers yielded somewhat more disparate results—only 60 percent of the telephone respondents gave the expected answers.

Reporting practice	*Failed means test*	*Passed means test*
Fixed hours	43	9
Varying hours	9*	2**
Fixed payroll	30	4
Varying payroll	5*	5**

* False positive
** False negative

The lack of stronger correspondence between the means test results and the telephone respondent answers clouds the issue of whether the identification of the problematic reports could be a solution to the problem of noneconomic fluctuations in the CES hours and earnings series. Undoubtedly, at least part of the problem is due to the limitation imposed by collecting only one payroll and hours figure, making it difficult to separately review and test salaried and hourly worker data.

Simulation of estimates

In order to simulate the effects of three kinds of adjustments, the CES estimation process was recreated in this study. First, all reports with semimonthly or monthly pay periods were removed and the hours and earnings series were reestimated using only the remaining reports. Second, for average weekly hours, all reports failing the means test were removed, and for average hourly earnings, the reports passing the average weekly hours test but failing the earnings test were removed, and the series were reestimated using only the remaining reports. Third, the conversion factor to normalize the series was changed to reflect the fixed work-hours and payroll reports and the corrected factor was applied to the reports failing the means test. The factor was changed to a fixed value of .46 for semimonthly reports and .23 for monthly reports.

The average weekly hours series for finance, insurance, and real estate are shown in chart 1. All three treatments successfully reduce the magnitude of the fluctuations displayed by the published and reconstructed series during months with fewer workdays per pay period, although some evidence of the underlying spikes remains. The treatments for average hourly earnings produced a somewhat smoother series but because the fluctuations were not as pronounced as in the average weekly hours series, the interpretation is more ambiguous.

An important observation here is that some of the treatments lower the level of the series. A review of sample averages by length of pay period confirmed that semimonthly and monthly reports had higher paid workers as compared with weekly and biweekly reports. It is difficult to conclude that any of the simulated series are substantially improved over the published or reconstructed series. Moreover, because these series are not seasonally adjusted, the interpretation is particularly difficult, especially because the average hourly earnings series display strong seasonal movements in some months.

REGARIMA modeling and diagnostics

The Model. For seasonal adjustment, the CES program uses the X-12-ARIMA software developed by the Bureau of the Census. For most of the published seasonally adjusted series, a technique known as REGARIMA modeling is used to identify the estimated size and significance of calendar effects, adjusting for them accordingly. Examples include the adjustments for interval effect between survey weeks currently applied to the CES employment series and the adjustment for moving holidays in the hours series.

The REGARIMA models evaluate the variation in levels attributable to varying calendar effects in the same month of different years. The effects are examined by a joint chi-square test, which provides evidence of statistical significance across all model variables, and by *t*-tests on individual coefficients. Adjustment factors are calculated and applied to the original series in connection with the seasonal factors. Because calendar effects are known in advance, factors can be forecasted based on the observed effects in past months. The observed fluctuation in the hours and earnings series are also related to calendar effects, making the application of the REGARIMA modeling technique a possible alternative in the mitigation of the fluctuations.

The multiplicative decomposition of time series is described by the model

$$Y = T * S * I * P$$

where

T = trend component
S = seasonal component
I = irregular component
P = the prior adjustment factor with decomposition

$$P = P_T * P_L * P_I .$$

In this application, the length of the period is month-specific, and is estimated as the factor P_L. For seasonal adjustment, it is combined with the seasonal factor, and the seasonally adjusted values are derived from the formula

$$Y / (S * P_L) = T * I * P_T * P_I .$$

Table 2. *t*-statistics for length-of pay-period variables for average weekly hours by selected industry divisions

Length-of pay-period variable	Transportation and public utilities	Wholesale trade	Retail trade	Finance, insurance, and real estate	Services
January	3.87	5.15	5.79	12.29	9.20
February	2.19	6.30	5.06	14.28	7.53
March	.44	6.50	1.97	14.05	7.56
April	4.49	3.87	5.94	10.11	6.70
May	1.86	6.14	1.47	11.68	9.06
June	3.80	5.66	4.54	14.25	6.15
July	3.11	4.51	3.51	10.68	6.40
August	.52	4.48	2.49	12.68	6.93
September	2.54	3.25	1.81	11.63	4.91
October	3.26	5.78	4.02	12.10	8.23
November	4.16	4.65	.98	13.13	6.63
December	2.81	4.50	2.91	11.74	5.90

Table 3. Smoothness tests and sliding span evaluation of the length-of-pay-period adjustment

Data series and industry division	Smoothness Tests			Span I: 1988–95		Span II: 1989–96		Span III: 1990–97	
	Smoothness ratio	Percent change in root-mean-squared error		Number of months in which $t > 0$	Joint p-value	Number of months in which $t > 0$	Joint p-value	Number of months in which $t > 0$	Joint p-value
		Full series	Last 3 years						
Average hourly earnings:									
Wholesale trade	71.0	–40.1	–53.4	11	0.00	11	0.00	12	0.00
Finance, insurance, and real estate	66.0	–52.0	–47.4	12	0.00	12	0.00	12	0.00
Services	78.0	–27.5	–31.4	11	0.00	12	0.00	11	0.00
Average weekly hours:									
Transportation and public utilities	74.0	–35.8	–46.9	7	0.00	9	0.00	10	0.00
Wholesale trade	60.0	–66.6	–89.4	12	0.00	11	0.00	11	0.00
Retail trade	68.0	–48.0	–56.8	7	0.00	8	0.00	8	0.00
Finance, insurance, and real estate	47.0	–113.0	–210.0	12	0.00	12	0.00	12	0.00
Services	45.0	–123.0	–99.2	12	0.00	12	0.00	12	0.00

As with other interventions and calendar effects, extended ARIMA models are used to estimate the effect of the length of pay period on the estimates by means of the formula

$$\text{Log } y_t - \sum \alpha_j M_{jt} - \sum \beta_j X_{jt} = \psi(B, B^{12})\ a_t$$

where

y_t = the observed series;
M_{jt} = the month variables;
X_{jt} = the outliers or other interventions;
α_j = the noise term;
ψ = the seasonal ARIMA model.

On the log scale, the effect of the length of the pay period of month j at time t is defined as

$$-\alpha_j M_{jt},$$

where

M_{jt} =

1.0 when $t = j$(mod 12), 10-day pay period,
–0.4 when $t = j$(mod 12), 11-day pay period,
0, otherwise.

The adjustment for the length of pay period is sometimes positive and sometimes negative. Because there are more instances of 11-day pay periods, the factor -0.4 helps achieve balance in these effects. This is analogous to the property that the mean of the seasonally adjusted series should be close to the mean of the unadjusted series. Notice also that only two factors are used which test only the effects of semimonthly reports on the series. Tests showed that by including four additional factors to account for the effects of the differences in pay periods of monthly reporters, the model does not improve and the adjustment factors estimated by the model become weaker for some months.

Significance tests for the length-of-pay-period. Chi-square and t-statistics were observed for testing the significance of the joint contribution and coefficients for each of the 12 monthly length-of-pay-period variables. As shown in table 2, of the 29 published average weekly hours series fitted with models using the explanatory variables, all 5 service-producing divisions had t-statistics greater than 2 for at least 8 of the 12 monthly variables. Three industry divisions—wholesale trade; finance, insurance, and real estate; and services—had t-statistics for all 12 variables greater than 3. The finance, insurance, and real estate division had t-statistics greater than 10 for all 12 variables, indicating that the length of pay period has a dominating effect on the over-the-month changes of this series. In addition to these significant t-statistics, the variables for all 5 series were positive, resulting in regression factors greater than 1 for all months with 10-day pay periods, therefore adjusting the series in the correct direction and mitigating the fluctuations.

The mining and construction divisions and 22 two-digit industries in manufacturing displayed only a few significant t-statistics for the length-of-pay-period variables. Moreover, the signs

of the *t*-statistics were both positive and negative, therefore having coefficients, which in some months contribute to the spikes. Based on the *t*-statistics and the effect of the variables, it was concluded that the average weekly hours series for the goods-producing industries are not significantly affected by the length of pay period and do not require an adjustment for this effect.

Of the eight published average hourly earnings series fitted with models using the explanatory variables, three service-producing divisions had *t*-statistics greater than 2 for at least 11 of the 12 variables displaying the same sign. The other five divisions displayed only a few *t*-statistics greater than 2 and the signs of the *t*-statistics were not equal. Based on these results, only the average hourly earnings series for wholesale trade; finance, insurance, and real estate; and services are adjusted for the length-of-pay-period effect.

Smoothness tests, sliding spans, seasonal adjustment. For validation of the REGARMIA models, four tests were conducted, the results of which are shown in table 3. First, a smothness ratio was calculated for each treated series by dividing the square root of the sum of the squared first differences of the LP-adjusted series by those of the unadjusted series. A value of less than 100 indicates that the adjusted series is smoother. Second, the percent change in root-mean-squared error was calculated as the percent difference between the root-mean-squared errors of the unadjusted series and those of the LP-adjusted series. A negative percentage indicates that the LP-adjusted series is smoother. The percent change is calculated for the full series and for the last 3 years.

- Third, a sliding span analysis was conducted, separately testing 3 different periods: 1988–95, 1989–96, and 1990–97. A *t*-statistic greater than 2.0 indicates the number of significant variables or months in the model (maximum = 12) for each span. The joint *p*-value of less than 0.10 indicates that the variables are jointly significant for each span.

Finally, the sliding span analysis also included tests of the seasonal factors, the final seasonally adjusted series, and the month-to-month changes in the seasonally adjusted series for stability over the 3 spans. Months were flagged as unstable if the difference of an analysis variable for the same month was greater than 3 percent from one span to the next. For these tests, no month was flagged as unstable.

The following tabulation shows statistics for finance, insurance, and real esate and for services before and after treatment.

	Finance, insurance, and real estate		*Services*	
Statistic	*Before*	*After*	*Before*	*After*
Stable F-Statistic	0.66	7.68	21.60	105.80
Moving F-Statistic	1.55	1.42	.61	0.30
M7-Statistic	2.83	.86	.47	.19
Q-Statistic	2.30	.83	1.27	.65

Table 4. Over-the-month changes in average weekly hours, with and without length-of-pay-period (LP) adjustment, and difference, 1993–98

Item	January	February	March	April	May	June	July	August	September	October	November	December
1993:												
LP-adjusted	.1	0	–.2	.2	0	–.1	1	0	.1	0	0	0
Not LP-adjusted	.1	0	–2	.2	.2	–.2	.1	.1	–.1	0	0	0
Difference	0	0	0	0	–.2	.1	0	–.1	.2	0	0	0
1994:												
LP-adjusted	0	–.2	.3	–.1	.1	0	0	–.1	0	.1	–.1	.1
Not LP-adjusted	.3	–.5	.3	0	.1	–.1	0	–.1	.1	.2	–.2	0
Difference	–.3	.3	0	–.1	0	.1	0	0	–.1	–.1	.1	0.1
1995:												
LP-adjusted	0	–.2	0	0	–.2	.1	0	0	0	0	0	–.1
Not LP-adjusted	.3	–.4	0	.1	–.4	.2	.1	–.1	0	.1	–.1	–.1
Difference	–.3	.2	0	–.1	.2	–.1	–.1	.1	0	–.1	.1	0
1996:												
LP-adjusted	–.4	.6	–.1	–.1	.1	.2	–.2	.1	.1	–.1	0	.1
Not LP-adjusted	–.4	.5	0	–.1	0	.4	–.4	.2	.2	–.3	.1	.2
Difference	0	.1	–.1	0	.1	–.2	.2	–.1	–.1	.2	–.1	–.1
1997:												
LP-adjusted	–.1	.1	.1	–.1	.1	–.2	0	.2	–.1	0	.1	0
Not LP-adjusted	–.3	.4	0	–.3	0	.1	–.2	.2	–.1	0	.3	–.2
Difference	.2	–.3	.1	.2	.1	–.3	.2	0	0	0	–2	.2
1998:												
LP-adjusted	.1	–.1	–.1	–.1	–	–	–	–	–	–	–	–
Not LP-adjusted	.2	.1	–.2	–.3	–	–	–	–	–	–	–	–
Difference	–.1	–.2	.1	.2	–	–	–	–	–	–	–	–

– = Data unavailable at time of study.

Table 5. Over-the-month changes in average hourly earnings, with and without length-of-pay-period adjustment, and difference, 1993–98

Item	January	February	March	April	May	June	July	August	September	October	November	December
1993:												
LP-adjusted	.3	.1	.5	0	.2	.2	.2	.2	.3	.2	.2	.3
Not LP-adjusted	.4	.2	.3	.1	.4	–.1	.3	.3	.1	.2	.3	.3
Difference	–.1	–.1	.2	–.1	–.2	.3	–.1	–.1	.2	0	–.1	0
1994:												
LP-adjusted	.3	.3	.1	.2	.3	.2	.2	.2	.3	.4	.2	.3
Not LP-adjusted	.3	.4	0	.3	.3	.1	.2	.2	.3	.6	0	.3
Difference	0	–.1	.1	–.1	0	.1	0	0	0	–.2	.2	0
1995:												
LP-adjusted	.1	.4	.2	.2	.2	.4	.4	.3	.3	.3	.2	.3
Not LP-adjusted	.2	.4	.1	.4	0	.4	.6	0	.4	.5	.1	.2
Difference	–.1	0	.1	–.2	.2	0	–.2	.3	–.1	–.2	.1	.1
1996:												
LP-adjusted	.5	0	.3	.6	.2	.6	.3	.3	.4	.3	.5	.4
Not LP-adjusted	.4	.2	.2	.5	.3	.7	0	.5	.5	0	.7	.5
Difference	.1	–.2	.1	.1	–.1	–.1	.3	–.2	–.1	.3	–.2	–.1
1997:												
LP-adjusted	.4	.3	.4	.3	.4	.3	.3	.7	.3	.6	.4	.3
Not LP-adjusted	.2	.5	.4	0	.5	.4	.1	.7	.4	.5	.8	0
Difference	.2	–.2	0	.3	–.1	–.1	.2	0	–.1	.1	–.4	.3
1998:												
LP-adjusted	.4	.5	.4	.7	–	–	–	–	–	–	–	–
Not LP-adjusted	.4	.7	.4	.4	–	–	–	–	–	–	–	–
Difference	0	–.2	0	.3	–	–	–	–	–	–	–	–

– = Data unavailable at time of study.

As can be seen, the adjustment for the length of pay period resulted in additional improvements to the data. Before the LP-adjustment, the seasonally adjusted average weekly hours series for these two industry divisions were not available to the public because the data did not meet BLS publication standards. After the adjustment, both series met the publication standards.

Effects of the treatment

The implementation of the REGARIMA-based smoothing techniques eliminates a significant source of noneconomic volatility in the CES hours and earning series, thereby improving the month-to-month measurement of underlying economic trend. A recent example of this occurs for the months of November and December 1997. As shown in table 4, the over-the-month change for average weekly hours not adjusted for the length of pay period in November (a 10-day pay period) is 0.3 hour. This change is reversed in December (an 11-day pay period) with an over-the-month change of –0.2 hour.

When the series is adjusted for the length-of-pay period effect, it shows less volatility. The November over-the-month change is 0.1 hour, while the over-the-month change in December is zero, indicating there is little actual change in average weekly hours over those months. Similarly for average hourly earnings, as shown in table 5, the series not adjusted for the lengthof pay period increases in November by 8 cents and is flat for the December over-the-month change. The adjustment corrects the series to increase in November by 4 cents and by 3 cents in December, figures more reflective of the actual underlying earnings trend.

THE CES HOURS AND EARNINGS SERIES are subject to noneconomic, calendar-related fluctuations caused by response error in semimonthly and monthly reports and the processing limitations in the CES production systems. Modeling with the REGARIMA technique results in the successful treatment of these fluctuations and smooths the problematic series. The treatment succeeds both in correcting historical data and incorporating the treatment in forecasted seasonal factors. A drawback of the treatment process is that currently only the seasonally adjusted series are corrected. Correcting the unadjusted series would require a change in the CES data collection prodedures to solicit average weekly hours and average hourly earnings data separately for hourly and salaried employees. It also would require a change in the way in which hours and earnings data are handled in the CES data collection systems. BLS currently is evaluating both measures to determine the feasibility of further action. □

How Much Time is Spent Commuting to Work in the United States?

The nonwork time use that is most closely related to employment is travel time to work ("commuting time"). Data on commuting times of all workers in the United States are available from the 1980 and 1990 population census. The average one-way commuting time for workers changed very little between 1980 and 1990, increasing by less than a minute one way each day.

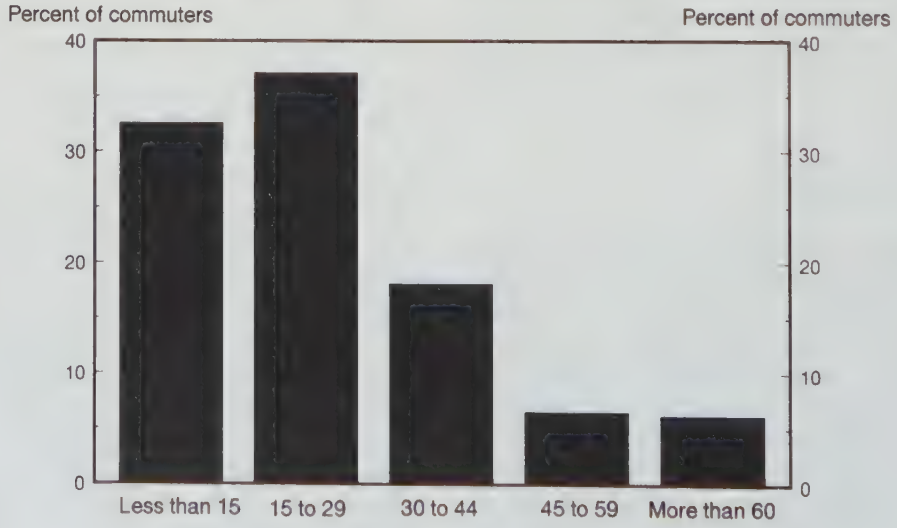
In 1990, the average one-way commuting time for all U.S. workers was about 22 minutes per day. About one-half of all U.S. workers (including those who did not commute) had commuting times of less than 20 minutes per day and about 31 percent spent a half-hour or more on commuting each way.

In general, average travel times were less in rural areas than in urban areas (in part because many workers on ranches and farms do not commute at all). For example, average one-way commuting times were less than 15 minutes per day for workers in Montana, North Dakota, and South Dakota.

However, average commuting times in metropolitan areas were only about a minute longer than the average for all workers. In only one metropolitan area in the United States—New York City along with its adjacent suburbaan areas of New Jersey and Long Island—did the average one-way commute exceed a half-hour a day.

Excerpted from Chapter 3, "Hours of Work,"
Report on the American Workforce, 4th edition
(Bureau of Labor Statistics, 1999),
available from the regional offices listed
on the inside front cover of this *Review*
or from the national office at (202) 606-5886

Travel time (in minutes) to work in the United States



SOURCE: U.S. Bureau of the Census, 1990 census.

Power couples and location choice

For dual career households, decisions about where to live can be especially complicated because two careers need to be taken into account when the household is facing relocation. In a recent working paper from the National Bureau of Economic Research, Dora L. Costa and Matthew E. Kahn study household location choice and "power couples" (in which both husband and wife have a college education).

The data for this study come from integrated public use micro samples from the 1940 and 1970–90 censuses of population. It was not possible to use census data for 1950 or 1960, because for 1950, the education of both spouses in couples was not available, and for 1960, the metropolitan area was not identified. The study analyzed data on marital status, age, sex, race, education, labor force status, occupation, and metropolitan area. The researchers restricted the sample to pairs in which the husband was between ages 25 and 45, to exclude couples who are towards the end of their careers.

Costa and Kahn find that as of 1990, power couples were more highly concentrated in large metropolitan areas than they were earlier in the century. They estimated that at least half of the rise was due to the increasing severity of the location-choice problem for college-educated couples. In addition, Costa and Kahn find that the relative returns for power couples of living in a large city compared to a small city have grown over time. Large metropolitan areas may be attractive to many couples, because they tend to offer a greater variety of job opportunities than other areas.

Child care costs and employment

Along with the trend in recent decades of growing numbers of two-career couples, there has been a trend of increasing labor force participation of mothers of young children. As Patricia M. Anderson and Phillip B. Levine describe in an NBER working paper, only 12 percent of women with children under age 6 were in the labor force in 1947, but by 1996 that figure was 62 percent. This increase has made child care a more prominent concern. In "Child Care and Mother's Employment Decisions," Anderson and Levine review evidence on the responsiveness of the labor supply of mothers to child care costs. They also derive their own estimates of this response and how this varies with women's skill levels.

For their study, Anderson and Levine utilized data from the early 1990s from four panels of the Census Bureau's Survey of Income and Program Participation. The sample in the study was restricted to women with children under the age of 13. Education was used as a proxy for skill level, with the sample divided into three groups: less than high school education, high school graduate, and more than high school.

About 38 percent of families in the sample paid for child care. The least skilled mothers were least likely to pay for care, while the most skilled were most likely: About 30 percent of the lowest skilled paid for care, compared with 43 percent of the highest skilled.

Anderson and Levine measured the elasticity of the labor force participation of mothers with respect to the cost of child care. Their results suggest that the range of elasticities for all women with children under age 13 is between –0.055 and –0.358. The results also indicate that the elasticity is larger for less skilled workers and declines as skill level rises.

Unionization and productivity

Pay and productivity are concepts that are closely linked in economic theory. And, as a matter of historical fact, Madeline Zavodny of the Federal Reserve Bank of Atlanta writes in the Bank's *Economic Review* that rising real compensation tracked fairly well with improvement in labor productivity until relatively recently. Starting in the mid-1970s and continuing through the mid-1990s, she observes productivity growth was "anemic" and wage growth was even more sluggish.

Because unions are in the business of raising wages for their members and union membership rate declined over this same period, Zavodny examines the relationship between the unionization rate and any gap between wages and productivity. She hypothesizes, "If the decline in unions partially underlies the wage productivity gap in manufacturing, then the difference between productivity growth and compensation or wage growth should be smaller in industries with higher initial unionization rates; industries with smaller declines in unionization rates should also have a smaller wage-productivity gap than industries with larger declines in unionization."

Zavodny's regression analysis of this relationship controlled for employment growth, capital investment at the industry level, international trade, and fixed-year effects suggests that industries that were more unionized at the start of the period indeed experienced smaller increases in the wage-productivity gap. However, the gap does not rise significantly faster in industries with declining unionization rates. Factors with strong associations with a smaller wage-productivity gap were rising employment and, perhaps, an increasing share of exports in an industry's total shipments. □

Future of organized labor

A New Labor Movement for the New Century. Edited by Gregory Mantsios. New York, Monthly Review Press. 1998, 353 pp. $24.

In one of his many speeches, John L. Lewis, President of the United Mine Workers of America and leading force behind the creation of the CIO in the 1930s, preached in his stentorian voice, "Let the workers organize. Let the toilers assemble. Let their crystallized voice proclaim their injustices and demand their privileges. Let all thoughtful citizens sustain them, for the future of Labor is the future of America." After reading *A New Labor Movement for the New Century*, one might hypothesize that the late Mr. Lewis somehow received a 60-year advance copy of the book and delivered this statement as commentary. The contributors to the book all note that the labor movement must discover drastic, new methods of organizing and operating if it wants to regain the right to represent the American workforce.

Yet, as the Lewis quote indicates, are the policies, programs, and strategies identified by the various authors of the book really that new, or simply a cyclical return to basics? The focus of each author's theories for a new direction for the labor movement is to organize the unorganized. To accomplish this, the American labor movement must jettison its conservative "top down"administrative structure prevalent in the 1950–80 period, and develop grass roots strategies where workers develop some form of working-class consciousness. This new philosophy must cross racial, ethnic, religious, socio-economic and, to some extent, political boundaries. Almost every chapter acknowledges that the "New Voice" leadership of the AFL-CIO leadership, led by John Sweeney who assumed the reigns of the labor federation in 1995, has begun to reverse the stagnation from previous administrations but still has a long way to go.

The book is the compilation of several papers delivered at a 1995 conference organized by the Queens College Labor Resource Center. The authors all have dissented against the policies of the Kirkland/Donahue administration of the AFL-CIO, and clearly admit so from the beginning. Their theories to reform organized labor are provocative, intriguing, and compared to the administration and operation of labor unions over the past 30 years or so, fairly radical. But one draws the line at describing their theories as new. In fact, "grass roots" organizing, utilizing the core community and its social web, was the new paradigm in the 1960s when scholars such as Herbert Gutman, *Work Life, Culture and Industrializing Society*, Philip Foner, *History of the American Labor Movement*, and Harry Braverman, *Labor and Monopoly Capital* popularized the concept. It is hard to distinguish that this concept is far different from the "one big union" campaign espoused by the Industrial Workers of the World (Wobblies) at the turn of the century.

This, however, is a new century and the struggles and strategies of earlier eras have been forgotten by many. The suggestions for reforming the labor movement are new to this generation of workers. The new unionism of the 21st century, as defined by this book, will consist of five distinct segments of this work's thesis: internal union democracy versus autocratism; organizing the unorganized; diversity of membership and leadership; participation in the political process; and globalization. Transition from one section to another is excellent, demonstrating editorial expertise and subject knowledge. Readers unfamiliar with the struggles of a developing labor movement will, if nothing else, find this easy to digest and understand.

The first few chapters clearly define what has happened to the movement and who is responsible. Naturally, corporate greed, political chicanery, and erosion of the social contract created by the Wagner Act in 1935 are clearly isolated. The stagnation of union leadership and its parochial policies, however, receives particular disdain. The George Meany/Lane Kirkland era witnessed the federation's role as benefiting the AFL-CIO but not necessarily workers. John Sweeney is quoted stating, "The AFL-CIO—too often seemed content to generate position papers—with little effect on workers beyond the Washington beltway." The authors of section one do acknowledge that Sweeney's Service Employees Union, with its Justice for Janitors campaign, and the United Farm Workers Union, led for many years by former migrant worker Cesar Chavez, were two exceptions to this trend and the models for future union administration.

Possibly the central theme of the entire work and conference that preceded it is Part 2: organize the unorganized. The new AFL-CIO leadership has made a good start, but more intense progress is urgent. The labor federation's new organizing institute, several authors argue, must integrate young, paid, college educated organizers with internal community-based and workplace-based activists. Examples of the Communications Workers and organization of Hispanic truck drivers and the American Federation of State County and Municipal Employees organizing through the influences of "women of color" in New York are examined in detail. The exclusionary membership policies of the past received special focus. The key to reaching the unorganized, several authors claim, is to abandon the embarrassing record of the past where diversity was a foul word.

In order to organize the unorganized, this work claims there must be one vision of workers and class, and that a unified approach to economics and politics will replenish union ranks. Once again the emphasis is away from members and toward those without union cards. "America Needs a Raise," was not only a book written by AFL-CIO President John Sweeney, but also a campaign to upgrade the living and working standards of all working-class individuals. And, while the "New Voice" effort by the labor federation is a good start, a movement away from traditional two-party politics in favor of a bona fide labor party is their vision for the future.

The labor movement was unable to stop NAFTA (North American Free Trade Agreement) or obtain legislation restricting the use of permanent strike replacements. To revive the labor movement, its leaders must aim beyond the workplace and strive for improvements in the welfare system, taxation policies, and government operations.

Finally, there exists the haunting specter of globalization. The collective authorship in this work realize that the "social contract" between workers and employers, as institutionally created by the 1935 Labor Management Relations Act has eroded substantially. One prime reason is the employers ability and willingness to transfer work outside the U.S. borders. The answer, they state, is not protectionism, but a global movement promoting pro-worker rights and trade standards. As one of the authors succinctly wrote, "What is good for GM may be good for GM, but what is good for American auto workers is a strong international labor movement." To complement that statement, AFL-CIO Vice President Richard Trumka noted that America's chief export must be "international solidarity."

The combination of all these factors has resulted in an intriguing, interesting, and easy to read publication. Students of the labor movement, however, will immediately recognize that the central thesis was extremely predictable. There is really nothing new here that has not been advocated by what can be labeled the more activist fringe of the labor movement. Some questions also rise in the analysis of this book. What countermeasures will organized capital take to combat labor's drive? Will we see sitdown strikes by Nike workers in Indonesia, where labor rights are regularly violated and government troops have attacked pro-labor demonstrations? Will we see workers in developing nations with cultural baggage alien to trade unionism adapt to organizing efforts? The authors briefly explore the possible relationship between American trade unions and the European Community, with its work councils and labor representation on business boards of directors, but this issue needs extrapolation. Perhaps these questions await further study and will be answered in future publications.

Nonetheless, this is a worthwhile publication that should be read by anyone interested in the future of labor relations. It may be the direction of the union movement in the 21st century, or it may be a utopian look at labor activism's wish list. The collective authorship is composed of some of the "movers and shakers" of trade unionism and academia, including Ron Blackwell of the new AFL-CIO organizing institute, Jeremy Beecher who wrote the classic radical book , *Strike*, George Kourpias former president of the IAM, Ruth Needleman who has written extensively on women of color in the union movement, and other noted activists too numerous to mention in a short review. There is no argument that the collective authorship hold key positions in the "new labor movement," but is this a realistic direction for the American labor movement which has not succeeded in raising a U.S. working-class consciousness? Time, as the adage proclaims, will tell.

The pontifications of John L. Lewis to organize the unorganized are fully dissected in this publication. The authors don't dwell on past failures too much except to illustrate the need for new directions in the post-industrial age of global economics. In fact, they encourage a new and aggressive campaign to not only restore trade unionism to its former position of power, but surpass previous levels. This is necessary to counterbalance the forces of large capital and create the "level playing field" in the labor-management process. It evokes memories of another labor activist, the martyred Joe Hill, who's final words allegedly were, "Don't mourn for me—Organize." This book preached the gospel of Joe Hill.

—Henry P. Guzda
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Work environment

Work, Health, and Environment: Old Problems, New Solutions. Edited by Charles Levenstein and John Wooding. New York, The Guilford Press, 1997, 536 pp.

Gathered from the journal, *New Solutions*, this collection of articles focuses on the relationship between occupational and environmental health. Each chapter brings critical issues to the reader's attention. This collection educates everyone—be they college students, community residents, industry representatives, government officials or scientific experts—bringing a new focus on the work environment to a wide audience.

The book is divided into four major sections: the political economy of the work environment; regulation and public policy; social conflict and the politics of health and safety; and future directions in work environment, health, and democracy. The organization of the book provides the general background and comments necessary to bring those unfamiliar with the issues up to par. Specific issues and case studies help illustrate the arguments and points made.

The first section of the book sets the stage for the remaining chapters. Levenstein and Tuminaro adeptly argue that occupational illness and disease is a reflection of economic, political, and social factors. The combination of these factors, and their subsequent relationship to each other, are crucial in understanding (and analyzing) environmental and occupational health concerns and problems. Kuhn and Wooding analyze how the structure of work has changed over time, linking environmental and occupational health concerns to the decline of labor unions, job security, medical benefits, and increased stress.

The book's second part focuses on the use of government regulations to ensure workers' health. The efficiency of these regulations, however, is dependent on the same economic, political, and social factors described in section one. Noble's

essay on the Occupational Safety and Health Act (OSHA) 20 years later provides an interesting look at the Federal Government's attempt to regulate the work environment. Several case studies are portrayed in this section, including mining, workers' compensation insurance, occupational lead standard, multiple chemical sensitivity, cancer theories and prevention, occupational stress, and sexual harassment. Each illustrates the political economy of the work environment and the interconnectedness of the economic, political, and social factors with the science-based policies that influence policy. The remaining chapters in this section identify the problems with assessing the risks that influence policy. The essays included in this portion are critical of risk assessment, raising questions concerning the political and (at times) unethical nature. While several of the authors find fault with the technique, Wartenberg and Chess argue that the process of risk assessment serves as an empowering tool for communities. The use of industrial hygiene practices in the work place is also discussed.

The third section of the book focuses on the relationship between the role of the "experts" (scientists and professionals) and the supposed neutrality of science. Here too, the interplay of economic, political, and social factors can be found. The work of the scientist or professional is rarely neutral. It is always influenced by their skills and training, their social standing, and their ambitions and beliefs. This outside influence plays havoc on the neutral role of science, leading to social conflicts. Included in this section are discussions of community involvement, environmental racism, occupational health clinics, and programs for change.

The final portion of the book is dedicated to finding solutions to the issues and concerns raised in the earlier sections of the book. The authors agree that workplace reform is needed—how that reform occurs, and what form it takes are arguable. Everything from a corporate charter (defining the relationship between a company and a community), to removing the inequalities (income, opportunities for employment, and adequate housing), to centering life around one's family and friends, recreation and personal development instead of one's occupation are addressed.

The editors of this collection have done an outstanding job organizing the articles and illustrating the relationship between the economic, political, and social factors that comprise the work environment. The reader comes away with a greater appreciation of the complexities of the issues involved.

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Workers compensation laws

Workers' Compensation: A Reference and Guide. By Peter M. Lencsis. Westport, Conn. Quorum Books, 1998, 173 pp. $59.95.

Workers' compensation in the United States is a combined government and private insurance program that today provides benefits to most workers who suffer work-related disabilities. It is a no-fault social insurance concept similar to no-fault automobile insurance and it mandates the payment of statutorily defined medical, disability, and other benefits to injured employees without regard to fault as a cause of the accident.

A part of the system is the requirement that employees buy and maintain insurance to cover all of their workers' compensation liability exposure (something like compulsory automobile insurance) unless they can qualify as self-insurers on the basis of their extraordinary financial ability. Premium rates for different categories of employment are determined by the collection and analysis of detailed statistics with reference to the expected losses or claims for each category.

Peter Lencsis' book, with its discussion of workers' compensation laws in terms of their history, and at various governmental levels (Federal and State), benefits and claims, insurance coverage and premiums, as well as current trends and issues in workers' compensation, comes at a time when the media has reported that workers' compensation costs —at one time one of the fastest rising business expenses—has been falling since the mid-1990s. But explanations as to "why?" differ.

Businesses say: Double-digit inflation in workers' compensation has forced companies to create safer workplaces, and to minimize health care costs by shifting workers to managed care. Companies also say that they are bringing injured workers back to the job sooner, even if it means giving them part-time work or less taxing duties.

But labor leaders and lawyers say most of the savings are the result of new State laws, passed because of intense corporate lobbying. These new laws make it more difficult for workers to qualify for workers' compensation, and provide lower benefits for those who do.

Present workers' compensation laws in the United States have evolved over time, the author points out. According to the American Insurance Association, 136 countries around the world had a workers' compensation system of one kind or another as of 1989. This benefit appears to be viewed as a necessary basic social welfare arrangement even in many countries that have no other benefits. Profiled are the plans of Canada, Germany, Japan, the United Kingdom, France, Australia, and New Zealand. Workers' compensation as it ultimately materialized in the United States had origins in the laws of Germany and of England. The English legal background was the traditional body of negligence law as applied to the master-servant relationship. In Germany was the distinctive idea that accidents connected with employment should be compensated, regardless of the presence or absence of negligence or other fault.

Prior to 1910, Maryland, Montana, and Massachusetts had enacted work-

ers' compensation laws that were limited to certain industries, or that applied only if agreed to by the employer and employee, but these laws were of little importance. Also, at President Theodore Roosevelt's request, in 1908, Congress enacted a workers' compensation law for a limited class of Federal employees. That law was later expanded to cover all Federal civilian employees and is now known as the Federal Employees' Compensation Act. Congress also enacted the Federal Employers' Liability Act, a comparative-negligence law applicable to railroad employees engaged in interstate commerce in 1908.

In 1910, following a study by the legislatively-mandated Wainwright Commission, New York became the first U.S. jurisdiction to enact a widely applicable, mandatory workers' compensation law (which was nevertheless limited to enumerated "hazardous" employments).

A number of Federal workers' compensation and related laws are briefly reviewed in Lencsis' book, including the Federal Employers' Liability Act, the Merchant Marine Act of 1920, Death on the High Seas Act, and General Maritime Law, the United States Longshore and Harbor Workers' Compensation Act, Extensions of the United States Longshore and Harbor Workers' Compensation Act, the Federal Employees Compensation Act, the District of Columbia Workers' Compensation Law, the Federal Black Lung Program, and Social Security and medicare.

Regrettably, the author has not included the Radiation Exposure Compensation Act passed by Congress in 1990 after 20 years of persistent efforts by uranium miners and mill workers working largely in the Four Corners area of the Colorado Plateau. This act was passed to provide financial help to sick miners and millers or the bereaved families of the dead. However, the requirements for documentation designed for the white man's world are said often to be difficult to meet for the Native American workers affected. These represent about a quarter of the workforce that comes under the act.

In the case of this act, as well as others, those who work in the field of workers' compensation often attempt administratively to make the legislation more flexible—and sometimes succeed. However, Lencsis' account is legalistic, not journalistic, and he does not venture into the area of variations in results or methods used to achieve them that come about as cases make their way through the administrative processes.

Although one of the original purposes of workers' compensation laws was to reduce the expense and delays associated with attorneys and trials, attorneys have always been involved in workers' compensation to some extent. A claimant is usually entitled to be represented by an attorney in dealings with the employer or carrier and in proceedings before the compensation board or commission. Likewise, the employer or carrier is normally entitled to legal representation with regard to claims of injured employees.

But most workers' compensation laws with respect to attorneys require that attorneys' fees be approved in advance of payment by the compensation judge or administrative agency in accordance with regulatory guidelines.

The author takes up the coverage of State and Federal workers' compensation laws with a list of workers' compensation administrative agencies. In most instances, cases cannot be settled for less than the full amount of compensation prescribed by statute, but a minority of jurisdictions do allow compromises and settlements. In almost all instances, settlements of any variety are subject to the approval of the workers' compensation administrative agency.

Also touched upon by the author are some of the workers' compensation issues that result from newer conditions of employment. Contingent workers, whereby workers paid as employees of one business are furnished to another—on a temporary or permanent and full-or parttime basis—generally come under special rules. Telecommuting raises certain workers' compensation problems that remain to be resolved.

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Fax-on-demand available

Users of data from the Bureau of Labor Statistics can request a fax of news releases, historical data, and technical information 24 hours a day, 7 days a week, from the Bureau's fax-on-demand system.

Users can receive news releases of major economic indicators (see schedule on back cover) at 8:45 a.m. on the morning the data are released. The number to obtain data from the national office is:

(202) 606-6325

Use a touch-tone telephone and follow the voice instructions for entering document codes and your fax telephone number. The fax-on-demand catalog, containing a list of available documents and codes, can be obtained by entering code 1000. You may request up to four documents with each call. Faxes are sent immediately following the request. If your fax line is busy, the system attempts to send the requested material four times before disconnecting.

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This section of the *Review* presents the principal statistical series collected and calculated by the Bureau of Labor Statistics: series on labor force; employment; unemployment; labor compensation; consumer, producer, and international prices; productivity; international comparisons; and injury and illness statistics. In the notes that follow, the data in each group of tables are briefly described; key definitions are given; notes on the data are set forth; and sources of additional information are cited.

General notes

The following notes apply to several tables in this section:

Seasonal adjustment. Certain monthly and quarterly data are adjusted to eliminate the effect on the data of such factors as climatic conditions, industry production schedules, opening and closing of schools, holiday buying periods, and vacation practices, which might prevent short-term evaluation of the statistical series. Tables containing data that have been adjusted are identified as "seasonally adjusted." (All other data are not seasonally adjusted.) Seasonal effects are estimated on the basis of past experience. When new seasonal factors are computed each year, revisions may affect seasonally adjusted data for several preceding years.

Seasonally adjusted data appear in tables 1–14, 16–17, 39, and 43. Seasonally adjusted labor force data in tables 1 and 4–9 were revised in the February 1999 issue of the *Review*. Seasonally adjusted establishment survey data shown in tables 1, 12–14 and 16–17 were revised in the July 1998 *Review* and reflect the experience through March 1998. A brief explanation of the seasonal adjustment methodology appears in "Notes on the data."

Revisions in the productivity data in table 45 are usually introduced in the September issue. Seasonally adjusted indexes and percent changes from month-to-month and quarter-to-quarter are published for numerous Consumer and Producer Price Index series. However, seasonally adjusted indexes are not published for the U.S. average All-Items CPI. Only seasonally adjusted percent changes are available for this series.

Adjustments for price changes. Some data—such as the "real" earnings shown in table 14—are adjusted to eliminate the effect of changes in price. These adjustments are made by dividing current-dollar values by the Consumer Price Index or the appropriate component of the index, then multiplying by 100. For example, given a current hourly wage rate of $3 and a current price index number of 150, where 1982 = 100, the hourly rate expressed in 1982 dollars is $2 ($3/150 x 100 = $2). The $2 (or any other resulting values) are described as "real," "constant," or "1982" dollars.

Sources of information

Data that supplement the tables in this section are published by the Bureau in a variety of sources. Definitions of each series and notes on the data are contained in later sections of these Notes describing each set of data. For detailed descriptions of each data series, see *BLS Handbook of Methods*, Bulletin 2490. Users also may wish to consult *Major Programs of the Bureau of Labor Statistics*, Report 919. News releases provide the latest statistical information published by the Bureau; the major recurring releases are published according to the schedule appearing on the back cover of this issue.

More information about labor force, employment, and unemployment data and the household and establishment surveys underlying the data are available in the Bureau's monthly publication, *Employment and Earnings*. Historical unadjusted and seasonally adjusted data from the household survey are available on the Internet:

http://stats.bls.gov/cpshome.htm

Historically comparable unadjusted and seasonally adjusted data from the establishment survey also are available on the Internet:

http://stats.bls.gov/ceshome.htm

Additional information on labor force data for areas below the national level are provided in the BLS annual report, *Geographic Profile of Employment and Unemployment*.

For a comprehensive discussion of the Employment Cost Index, see *Employment Cost Indexes and Levels, 1975–95*, BLS Bulletin 2466. The most recent data from the Employee Benefits Survey appear in the following Bureau of Labor Statistics bulletins: *Employee Benefits in Medium and Large Firms; Employee Benefits in Small Private Establishments;* and *Employee Benefits in State and Local Governments*.

More detailed data on consumer and producer prices are published in the monthly periodicals, *The CPI Detailed Report* and *Producer Price Indexes*. For an overview of the 1998 revision of the CPI, see the December 1996 issue of the *Monthly Labor Review*. Additional data on international prices appear in monthly news releases.

Listings of industries for which productivity indexes are available may be found on the Internet:

http://stats.bls.gov/iprhome.htm

For additional information on international comparisons data, see *International Comparisons of Unemployment*, BLS Bulletin 1979.

Detailed data on the occupational injury and illness series are published in *Occupational Injuries and Illnesses in the United States, by Industry*, a BLS annual bulletin.

Finally, the *Monthly Labor Review* carries analytical articles on annual and longer term developments in labor force, employment, and unemployment; employee compensation and collective bargaining; prices; productivity; international comparisons; and injury and illness data.

Symbols

n.e.c. = not elsewhere classified.
n.e.s. = not elsewhere specified.
p = preliminary. To increase the timeliness of some series, preliminary figures are issued based on representative but incomplete returns.
r = revised. Generally, this revision reflects the availability of later data, but also may reflect other adjustments.

Comparative Indicators

(Tables 1–3)

Comparative indicators tables provide an overview and comparison of major BLS statistical series. Consequently, although many of the included series are available monthly, all measures in these comparative tables are presented quarterly and annually.

Labor market indicators include employment measures from two major surveys and information on rates of change in compensation provided by the Employment Cost Index (ECI) program. The labor force participation rate, the employment-to-population ratio, and unemployment rates for major demographic groups based on the Current Population ("household") Survey are presented, while measures of employment and average weekly hours by major industry sector are given using nonfarm payroll data. The Employment Cost Index (compensation), by major sector and by bargaining status, is chosen from a variety of BLS compensation and wage measures because it provides a comprehensive measure of employer costs for hiring labor, not just outlays for wages, and it is not affected by employment shifts among occupations and industries.

Data on **changes in compensation, prices, and productivity** are presented in table 2.

Measures of rates of change of compensation and wages from the Employment Cost Index program are provided for all civilian nonfarm workers (excluding Federal and household workers) and for all private nonfarm workers. Measures of changes in consumer prices for all urban consumers; producer prices by stage of processing; overall prices by stage of processing; and overall export and import price indexes are given. Measures of productivity (output per hour of all persons) are provided for major sectors.

Alternative measures of wage and compensation rates of change, which reflect the overall trend in labor costs, are summarized in table 3. Differences in concepts and scope, related to the specific purposes of the series, contribute to the variation in changes among the individual measures.

Notes on the data

Definitions of each series and notes on the data are contained in later sections of these notes describing each set of data.

Employment and Unemployment Data

(Tables 1; 4–20)

Household survey data

Description of the series

EMPLOYMENT DATA in this section are obtained from the Current Population Survey, a program of personal interviews conducted monthly by the Bureau of the Census for the Bureau of Labor Statistics. The sample consists of about 50,000 households selected to represent the U.S. population 16 years of age and older. Households are interviewed on a rotating basis, so that three-fourths of the sample is the same for any 2 consecutive months.

Definitions

Employed persons include (1) all those who worked for pay any time during the week which includes the 12th day of the month or who worked unpaid for 15 hours or more in a family-operated enterprise and (2) those who were temporarily absent from their regular jobs because of illness, vacation, industrial dispute, or similar reasons. A person working at more than one job is counted only in the job at which he or she worked the greatest number of hours.

Unemployed persons are those who did not work during the survey week, but were available for work except for temporary illness and had looked for jobs within the preceding 4 weeks. Persons who did not look for work because they were on layoff are also counted among the unemployed. **The unemployment rate** represents the number unemployed as a percent of the civilian labor force.

The **civilian labor force** consists of all employed or unemployed persons in the civilian noninstitutional population. Persons **not in the labor force** are those not classified as employed or unemployed. This group includes discouraged workers, defined as persons who want and are available for a job and who have looked for work sometime in the past 12 months (or since the end of their last job if they held one within the past 12 months), but are not currently looking, because they believe there are no jobs available or there are none for which they would qualify. The **civilian noninstitutional population** comprises all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy. The **civilian labor force participation** rate is the proportion of the civilian noninstitutional population that is in the labor force. The **employment-population ratio** is employment as a percent of the civilian noninstitutional population.

Notes on the data

From time to time, and especially after a decennial census, adjustments are made in the Current Population Survey figures to correct for estimating errors during the intercensal years. These adjustments affect the comparability of historical data. A description of these adjustments and their effect on the various data series appears in the Explanatory Notes of *Employment and Earnings*.

Labor force data in tables 1 and 4–9 are seasonally adjusted. Since January 1980, national labor force data have been seasonally adjusted with a procedure called X-11 ARIMA which was developed at Statistics Canada as an extension of the standard X-11 method previously used by BLS. A detailed description of the procedure appears in the X-11 *ARIMA Seasonal Adjustment Method*, by Estela Bee Dagum (Statistics Canada, Catalogue No. 12-564E, January 1983).

At the beginning of each calendar year, historical seasonally adjusted data usually are revised, and projected seasonal adjustment factors are calculated for use during the January–June period. The historical seasonally adjusted data usually are revised for only the most recent 5 years. In July, new seasonal adjustment factors, which incorporate the experience through June, are produced for the July–December period, but no revisions are made in the historical data.

Revisions in the household survey

Data beginning in 1999 are not strictly comparable with data for 1998 and earlier years because of the introduction of revised population controls. Additional information appears in the February 1999 issue of *Employment and Earnings*.

FOR ADDITIONAL INFORMATION on national household survey data, contact the Division of Labor Force Statistics: (202) 606–6378.

Establishment survey data

Description of the series

EMPLOYMENT, HOURS, AND EARNINGS DATA in this section are compiled from payroll records reported monthly on a voluntary basis to the Bureau of Labor Statistics and its cooperating State agencies by about 390,000 establishments representing all industries except agriculture. Industries are classified in accordance with the 1987 *Standard Industrial Classification (SIC) Manual*. In most industries, the sampling probabilities are based on the size of the establishment; most large establishments are therefore in the sample. (An establishment is not necessarily a firm; it may be a branch plant, for example, or warehouse.) Self-employed persons and others not on a regular civilian payroll are outside the scope of the survey because they are excluded from establishment records. This largely accounts for the difference in employment figures between the household and establishment surveys.

Definitions

An **establishment** is an economic unit which produces goods or services (such as a factory or store) at a single location and is engaged in one type of economic activity.

Employed persons are all persons who received pay (including holiday and sick pay) for any part of the payroll period including the 12th day of the month. Persons holding more than one job (about 5 percent of all persons in the labor force) are counted in each establishment which reports them.

Production workers in manufacturing include working supervisors and nonsupervisory workers closely associated with production operations. Those workers mentioned in tables 11–16 include production workers in manufacturing and mining;

construction workers in construction; and nonsupervisory workers in the following industries: transportation and public utilities; wholesale and retail trade; finance, insurance, and real estate; and services. These groups account for about four-fifths of the total employment on private nonagricultural payrolls.

Earnings are the payments production or nonsupervisory workers receive during the survey period, including premium pay for overtime or late-shift work but excluding irregular bonuses and other special payments. **Real earnings** are earnings adjusted to reflect the effects of changes in consumer prices. The deflator for this series is derived from the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W).

Hours represent the average weekly hours of production or nonsupervisory workers for which pay was received, and are different from standard or scheduled hours. **Overtime hours** represent the portion of average weekly hours which was in excess of regular hours and for which overtime premiums were paid.

The **Diffusion Index** represents the percent of industries in which employment was rising over the indicated period, plus one-half of the industries with unchanged employment; 50 percent indicates an equal balance between industries with increasing and decreasing employment. In line with Bureau practice, data for the 1-, 3-, and 6-month spans are seasonally adjusted, while those for the 12-month span are unadjusted. Data are centered within the span. Table 17 provides an index on private nonfarm employment based on 356 industries, and a manufacturing index based on 139 industries. These indexes are useful for measuring the dispersion of economic gains or losses and are also economic indicators.

Notes on the data

Establishment survey data are annually adjusted to comprehensive counts of employment (called "benchmarks"). The latest adjustment, which incorporated March 1997 benchmarks, was made with the release of May 1998 data, published in the July 1998 issue of the *Review*. Coincident with the benchmark adjustment, historical seasonally adjusted data were revised to reflect updated seasonal factors and refinement in the seasonal adjustment procedures. Unadjusted data from April 1997 forward and seasonally adjusted data from January 1994 forward are subject to revision in future benchmarks.

Revisions in State data (table 11) occurred with the publication of January 1999 data.

Beginning in June 1996, the BLS uses the X-12 ARIMA methodology to seasonally adjust establishment survey data. This procedure, developed by the Bureau of the Census, controls for the effect of varying survey intervals (also known as the 4- versus 5-week effect), thereby providing improved measurement of over-the-month changes and underlying economic trends. Revisions of data, usually for the most recent 5-year period, are made once a year coincident with the benchmark revisions.

In the establishment survey, estimates for the most recent 2 months are based on incomplete returns and are published as preliminary in the tables (12–17 in the *Review*). When all returns have been received, the estimates are revised and published as "final" (prior to any benchmark revisions) in the third month of their appearance. Thus, December data are published as preliminary in January and February and as final in March. For the same reasons, quarterly establishment data (table 1) are preliminary for the first 2 months of publication and final in the third month. Thus, fourth-quarter data are published as preliminary in January and February and as final in March.

A comprehensive discussion of the differences between household and establishment data on employment appears in Gloria P. Green, "Comparing employment estimates from household and payroll surveys," *Monthly Labor Review*, December 1969, pp. 9–20.

FOR ADDITIONAL INFORMATION on establishment survey data, contact the Division of Monthly Industry Employment Statistics: (202) 606–6555.

Unemployment data by State

Description of the series

Data presented in this section are obtained from the Local Area Unemployment Statistics (LAUS) program, which is conducted in cooperation with State employment security agencies.

Monthly estimates of the labor force, employment, and unemployment for States and sub-State areas are a key indicator of local economic conditions, and form the basis for determining the eligibility of an area for benefits under Federal economic assistance programs such as the Job Training Partnership Act. Seasonally adjusted unemployment rates are presented in table 10. Insofar as possible, the concepts and definitions underlying these data are those used in the national estimates obtained from the CPS.

Notes on the data

Data refer to State of residence. Monthly data for all States and the District of Columbia are derived using standardized procedures established by BLS. Once a year, estimates are revised to new population controls, usually with publication of January estimates, and benchmarked to annual average CPS levels.

FOR ADDITIONAL INFORMATION on data in this series, call (202) 606–6392 (table 10) or (202) 606–6559 (table 11).

Compensation and Wage Data

(Tables 1–3; 21–27)

COMPENSATION AND WAGE DATA are gathered by the Bureau from business establishments, State and local governments, labor unions, collective bargaining agreements on file with the Bureau, and secondary sources.

Employment Cost Index

Description of the series

The **Employment Cost Index** (ECI) is a quarterly measure of the rate of change in compensation per hour worked and includes wages, salaries, and employer costs of employee benefits. It uses a fixed market basket of labor—similar in concept to the Consumer Price Index's fixed market basket of goods and services—to measure change over time in employer costs of employing labor.

Statistical series on total compensation costs, on wages and salaries, and on benefit costs are available for private nonfarm workers excluding proprietors, the self-employed, and household workers. The total compensation costs and wages and salaries series are also available for State and local government workers and for the civilian nonfarm economy, which consists of private industry and State and local government workers combined. Federal workers are excluded.

The Employment Cost Index probability sample consists of about 4,400 private nonfarm establishments providing about 23,000 occupational observations and 1,000 State and local government establishments providing 6,000 occupational observations selected to represent total employment in each sector. On average, each reporting unit provides wage and compensation information on five well-specified occupations. Data are collected each quarter for the pay period including the 12th day of March, June, September, and December.

Beginning with June 1986 data, fixed employment weights from the 1980 Census of Population are used each quarter to calculate the civilian and private indexes and the index for State and local governments. (Prior to June 1986, the employment weights are from the 1970 Census of Population.) These fixed weights, also used to derive all of the industry and occupation series indexes, ensure that changes in these indexes reflect only changes in compensa-

tion, not employment shifts among industries or occupations with different levels of wages and compensation. For the bargaining status, region, and metropolitan/nonmetropolitan area series, however, employment data by industry and occupation are not available from the census. Instead, the 1980 employment weights are reallocated within these series each quarter based on the current sample. Therefore, these indexes are not strictly comparable to those for the aggregate, industry, and occupation series.

Definitions

Total compensation costs include wages, salaries, and the employer's costs for employee benefits.

Wages and salaries consist of earnings before payroll deductions, including production bonuses, incentive earnings, commissions, and cost-of-living adjustments.

Benefits include the cost to employers for paid leave, supplemental pay (including nonproduction bonuses), insurance, retirement and savings plans, and legally required benefits (such as Social Security, workers' compensation, and unemployment insurance).

Excluded from wages and salaries and employee benefits are such items as payment-in-kind, free room and board, and tips.

Notes on the data

The Employment Cost Index for changes in wages and salaries in the private nonfarm economy was published beginning in 1975. Changes in total compensation cost—wages and salaries and benefits combined—were published beginning in 1980. The series of changes in wages and salaries and for total compensation in the State and local government sector and in the civilian nonfarm economy (excluding Federal employees) were published beginning in 1981. Historical indexes (June 1981=100) are available on the Internet:

http://stats.bls.gov/ecthome.htm

FOR ADDITIONAL INFORMATION on the Employment Cost Index, contact the Office of Compensation Levels and Trends: (202) 606–6199.

Employee Benefits Survey

Description of the series

Employee benefits data are obtained from the Employee Benefits Survey, an annual survey of the incidence and provisions of selected benefits provided by employers. The survey collects data from a sample of approximately 9,000 private sector and State and local government establishments. The data are presented as a percentage of employees who participate in a certain benefit, or as an average benefit provision (for example, the average number of paid holidays provided to employees per year). Selected data from the survey are presented in table 25 for medium and large private establishments and in table 26 for small private establishments and State and local government.

The survey covers paid leave benefits such as holidays and vacations, and personal, funeral, jury duty, military, family, and sick leave; short-term disability, long-term disability, and life insurance; medical, dental, and vision care plans; defined benefit and defined contribution plans; flexible benefits plans; reimbursement accounts; and unpaid family leave.

Also, data are tabulated on the incidence of several other benefits, such as severance pay, child-care assistance, wellness programs, and employee assistance programs.

Definitions

Employer-provided benefits are benefits that are financed either wholly or partly by the employer. They may be sponsored by a union or other third party, as long as there is some employer financing. However, some benefits that are fully paid for by the employee also are included. For example, long-term care insurance and postretirement life insurance paid entirely by the employee are included because the guarantee of insurability and availability at group premium rates are considered a benefit.

Participants are workers who are covered by a benefit, whether or not they use that benefit. If the benefit plan is financed wholly by employers and requires employees to complete a minimum length of service for eligibility, the workers are considered participants whether or not they have met the requirement. If workers are required to contribute towards the cost of a plan, they are considered participants only if they elect the plan and agree to make the required contributions.

Defined benefit pension plans use predetermined formulas to calculate a retirement benefit (if any), and obligate the employer to provide those benefits. Benefits are generally based on salary, years of service, or both.

Defined contribution plans generally specify the level of employer and employee contributions to a plan, but not the formula for determining eventual benefits. Instead, individual accounts are set up for participants, and benefits are based on amounts credited to these accounts.

Tax-deferred savings plans are a type of defined contribution plan that allow participants to contribute a portion of their salary to an employer-sponsored plan and defer income taxes until withdrawal.

Flexible benefit plans allow employees to choose among several benefits, such as life insurance, medical care, and vacation days, and among several levels of coverage within a given benefit.

Notes on the data

Surveys of employees in medium and large establishments conducted over the 1979–86 period included establishments that employed at least 50, 100, or 250 workers, depending on the industry (most service industries were excluded). The survey conducted in 1987 covered only State and local governments with 50 or more employees. The surveys conducted in 1988 and 1989 included medium and large establishments with 100 workers or more in private industries. All surveys conducted over the 1979–89 period excluded establishments in Alaska and Hawaii, as well as part-time employees.

Beginning in 1990, surveys of State and local governments and small private establishments were conducted in even-numbered years, and surveys of medium and large establishments were conducted in odd-numbered years. The small establishment survey includes all private nonfarm establishments with fewer than 100 workers, while the State and local government survey includes all governments, regardless of the number of workers. All three surveys include full- and part-time workers, and workers in all 50 States and the District of Columbia.

FOR ADDITIONAL INFORMATION on the Employee Benefits Survey, contact the Office of Compensation Levels and Trends (202) 606–6222 or the Internet:

http://stats.bls.gov/ebshome.htm

Work stoppages

Description of the series

Data on work stoppages measure the number and duration of major strikes or lockouts (involving 1,000 workers or more) occurring during the month (or year), the number of workers involved, and the amount of work time lost because of stoppage. These data are presented in table 27.

Data are largely from a variety of published sources and cover only establishments directly involved in a stoppage. They do not measure the indirect or secondary effect of stoppages on other establishments whose employees are idle owing to material shortages or lack of service.

Definitions

Number of stoppages: The number of strikes and lockouts involving 1,000 work-

ers or more and lasting a full shift or longer.

Workers involved: The number of workers directly involved in the stoppage.

Number of days idle: The aggregate number of workdays lost by workers involved in the stoppages.

Days of idleness as a percent of estimated working time: Aggregate workdays lost as a percent of the aggregate number of standard workdays in the period multiplied by total employment in the period.

Notes on the data

This series is not comparable with the one terminated in 1981 that covered strikes involving six workers or more.

FOR ADDITIONAL INFORMATION on work stoppages data, contact the Office of Compensation and Working Conditions: (202) 606–6282, or the Internet:

http://stats.bls.gov/cbahome.htm

Price Data

(Tables 2; 28–38)

PRICE DATA are gathered by the Bureau of Labor Statistics from retail and primary markets in the United States. Price indexes are given in relation to a base period—1982 = 100 for many Producer Price Indexes, 1982–84 = 100 for many Consumer Price Indexes (unless otherwise noted), and 1990 = 100 for International Price Indexes.

Consumer Price Indexes

Description of the series

The **Consumer Price Index** (CPI) is a measure of the average change in the prices paid by urban consumers for a fixed market basket of goods and services. The CPI is calculated monthly for two population groups, one consisting only of urban households whose primary source of income is derived from the employment of wage earners and clerical workers, and the other consisting of all urban households. The wage earner index (CPI-W) is a continuation of the historic index that was introduced well over a half-century ago for use in wage negotiations. As new uses were developed for the CPI in recent years, the need for a broader and more representative index became apparent. The all-urban consumer index (CPI-U), introduced in 1978, is representative of the 1993–95 buying habits of about 87 percent of the noninstitutional population of the United States at that time, compared with 32 percent represented in the CPI-W. In addition to wage earners and clerical workers, the CPI-U covers professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, retirees, and others not in the labor force.

The CPI is based on prices of food, clothing, shelter, fuel, drugs, transportation fares, doctors' and dentists' fees, and other goods and services that people buy for day-to-day living. The quantity and quality of these items are kept essentially unchanged between major revisions so that only price changes will be measured. All taxes directly associated with the purchase and use of items are included in the index.

Data collected from more than 23,000 retail establishments and 5,800 housing units in 87 urban areas across the country are used to develop the "U.S. city average." Separate estimates for 14 major urban centers are presented in table 29. The areas listed are as indicated in footnote 1 to the table. The area indexes measure only the average change in prices for each area since the base period, and do not indicate differences in the level of prices among cities.

Notes on the data

In January 1983, the Bureau changed the way in which homeownership costs are meaured for the CPI-U. A rental equivalence method replaced the asset-price approach to homeownership costs for that series. In January 1985, the same change was made in the CPI-W. The central purpose of the change was to separate shelter costs from the investment component of home-ownership so that the index would reflect only the cost of shelter services provided by owner-occupied homes. An updated CPI-U and CPI-W were introduced with release of the January 1987 and January 1998 data.

FOR ADDITIONAL INFORMATION on consumer prices, contact the Division of Consumer Prices and Price Indexes: (202) 606–7000.

Producer Price Indexes

Description of the series

Producer Price Indexes (PPI) measure average changes in prices received by domestic producers of commodities in all stages of processing. The sample used for calculating these indexes currently contains about 3,200 commodities and about 80,000 quotations per month, selected to represent the movement of prices of all commodities produced in the manufacturing; agriculture, forestry, and fishing; mining; and gas and electricity and public utilities sectors. The stage-of-processing structure of PPI organizes products by class of buyer and degree of fabrication (that is, finished goods, intermediate goods, and crude materials). The traditional commodity structure of PPI organizes products by similarity of end use or material composition. The industry and product structure of PPI organizes data in accordance with the Standard Industrial Classification (SIC) and the product code extension of the SIC developed by the U.S. Bureau of the Census.

To the extent possible, prices used in calculating Producer Price Indexes apply to the first significant commercial transaction in the United States from the production or central marketing point. Price data are generally collected monthly, primarily by mail questionnaire. Most prices are obtained directly from producing companies on a voluntary and confidential basis. Prices generally are reported for the Tuesday of the week containing the 13th day of the month.

Since January 1992, price changes for the various commodities have been averaged together with implicit quantity weights representing their importance in the total net selling value of all commodities as of 1987. The detailed data are aggregated to obtain indexes for stage-of-processing groupings, commodity groupings, durability-of-product groupings, and a number of special composite groups. All Producer Price Index data are subject to revision 4 months after original publication.

FOR ADDITIONAL INFORMATION on producer prices, contact the Division of Industrial Prices and Price Indexes: (202) 606–7705.

International Price Indexes

Description of the series

The **International Price Program** produces monthly and quarterly export and import price indexes for nonmilitary goods traded between the United States and the rest of the world. The export price index provides a measure of price change for all products sold by U.S. residents to foreign buyers. ("Residents" is defined as in the national income accounts; it includes corporations, businesses, and individuals, but does not require the organizations to be U.S. owned nor the individuals to have U.S. citizenship.) The import price index provides a measure of price change for goods purchased from other countries by U.S. residents.

The product universe for both the import and export indexes includes raw materials, agricultural products, semifinished manufactures, and finished manufactures, including both capital and consumer goods. Price data for these items are collected primarily by mail questionnaire. In nearly all cases, the data are collected directly from the exporter or importer, although in a few cases, prices are obtained from other sources.

To the extent possible, the data gathered refer to prices at the U.S. border for exports

and at either the foreign border or the U.S. border for imports. For nearly all products, the prices refer to transactions completed during the first week of the month. Survey respondents are asked to indicate all discounts, allowances, and rebates applicable to the reported prices, so that the price used in the calculation of the indexes is the actual price for which the product was bought or sold.

In addition to general indexes of prices for U.S. exports and imports, indexes are also published for detailed product categories of exports and imports. These categories are defined according to the five-digit level of detail for the Bureau of Economic Analysis End-use Classification (SITC), and the four-digit level of detail for the Harmonized System. Aggregate import indexes by country or region of origin are also available.

BLS publishes indexes for selected categories of internationally traded services, calculated on an international basis and on a balance-of-payments basis.

Notes on the data

The export and import price indexes are weighted indexes of the Laspeyres type. Price relatives are assigned equal importance within each harmonized group and are then aggregated to the higher level. The values assigned to each weight category are based on trade value figures compiled by the Bureau of the Census. The trade weights currently used to compute both indexes relate to 1990.

Because a price index depends on the same items being priced from period to period, it is necessary to recognize when a product's specifications or terms of transaction have been modified. For this reason, the Bureau's questionnaire requests detailed descriptions of the physical and functional characteristics of the products being priced, as well as information on the number of units bought or sold, discounts, credit terms, packaging, class of buyer or seller, and so forth. When there are changes in either the specifications or terms of transaction of a product, the dollar value of each change is deleted from the total price change to obtain the "pure" change. Once this value is determined, a linking procedure is employed which allows for the continued repricing of the item.

For the export price indexes, the preferred pricing is f.a.s. (free alongside ship) U.S. port of exportation. When firms report export prices f.o.b. (free on board), production point information is collected which enables the Bureau to calculate a shipment cost to the port of exportation. An attempt is made to collect two prices for imports. The first is the import price f.o.b. at the foreign port of exportation, which is consistent with the basis for valuation of imports in the national accounts. The second is the import price c.i.f.(costs, insurance, and freight) at the U.S. port of importation, which also includes the other costs associated with bringing the product to the U.S. border. It does not, however, include duty charges. For a given product, only one price basis series is used in the construction of an index.

FOR ADDITIONAL INFORMATION on international prices, contact the Division of International Prices: (202) 606–7155.

Productivity Data

(Tables 2; 39–42)

Business sector and major sectors

Description of the series

The productivity measures relate real output to real input. As such, they encompass a family of measures which include single-factor input measures, such as output per hour, output per unit of labor input, or output per unit of capital input, as well as measures of multifactor productivity (output per unit of combined labor and capital inputs). The Bureau indexes show the change in output relative to changes in the various inputs. The measures cover the business, nonfarm business, manufacturing, and nonfinancial corporate sectors.

Corresponding indexes of hourly compensation, unit labor costs, unit nonlabor payments, and prices are also provided.

Definitions

Output per hour of all persons (labor productivity) is the quantity of goods and services produced per hour of labor input. **Output per unit of capital services** (capital productivity) is the quantity of goods and services produced per unit of capital services input. **Multifactor productivity** is the quantity of goods and services produced per combined inputs. For private business and private nonfarm business, inputs include labor and capital units. For manufacturing, inputs include labor, capital, energy, non-energy materials, and purchased business services.

Compensation per hour is total compensation divided by hours at work. Total compensation equals the wages and salaries of employees plus employers' contributions for social insurance and private benefit plans, plus an estimate of these payments for the self-employed (except for nonfinancial corporations in which there are no self-employed). **Real compensation per hour** is compensation per hour deflated by the change in the Consumer Price Index for All Urban Consumers.

Unit labor costs are the labor compensation costs expended in the production of a unit of output and are derived by dividing compensation by output. **Unit nonlabor payments** include profits, depreciation, interest, and indirect taxes per unit of output. They are computed by subtracting compensation of all persons from current-dollar value of output and dividing by output.

Unit nonlabor costs contain all the components of unit nonlabor payments except unit profits.

Unit profits include corporate profits with inventory valuation and capital consumption adjustments per unit of output.

Hours of all persons are the total hours at work of payroll workers, self-employed persons, and unpaid family workers.

Labor inputs are hours of all persons adjusted for the effects of changes in the education and experience of the labor force.

Capital services are the flow of services from the capital stock used in production. It is developed from measures of the net stock of physical assets—equipment, structures, land, and inventories—weighted by rental prices for each type of asset.

Combined units of labor and capital inputs are derived by combining changes in labor and capital input with weights which represent each component's share of total cost. Combined units of labor, capital, energy, materials, and purchased business services are similarly derived by combining changes in each input with weights that represent each input's share of total costs. The indexes for each input and for combined units are based on changing weights which are averages of the shares in the current and preceding year (the Tornquist index-number formula).

Notes on the data

Business sector output is an annually-weighted index constructed by excluding from real gross domestic product (GDP) the following outputs: general government, nonprofit institutions, paid employees of private households, and the rental value of owner-occupied dwellings. Nonfarm business also excludes farming. Private business and private nonfarm business further exclude government enterprises. The measures are supplied by the U.S. Department of Commerce's Bureau of Economic Analysis. Annual estimates of manufacturing sectoral output are produced by the Bureau of Labor Statistics. Quarterly manufacturing output indexes from the Federal Reserve Board are adjusted to these annual output measures by the BLS. Compensation data are developed from data of the Bureau of Economic Analysis and the Bureau of Labor Statistics. Hours data are developed from data of the Bureau of Labor Statistics.

The productivity and associated cost mea-

sures in tables 39–42 describe the relationship between output in real terms and the labor and capital inputs involved in its production. They show the changes from period to period in the amount of goods and services produced per unit of input.

Although these measures relate output to hours and capital services, they do not measure the contributions of labor, capital, or any other specific factor of production. Rather, they reflect the joint effect of many influences, including changes in technology; shifts in the composition of the labor force; capital investment; level of output; changes in the utilization of capacity, energy, material, and research and development; the organization of production; managerial skill; and characteristics and efforts of the work force.

FOR ADDITIONAL INFORMATION on this productivity series, contact the Division of Productivity Research: (202) 606–5606.

Industry productivity measures

Description of the series

The BLS industry productivity data supplement the measures for the business economy and major sectors with annual measures of labor productivity for selected industries at the three- and four-digit levels of the Standard Industrial Classification system. The industry measures differ in methodology and data sources from the productivity measures for the major sectors because the industry measures are developed independently of the National Income and Product Accounts framework used for the major sector measures.

Definitions

Output per hour is derived by dividing an index of industry output by an index of labor input. For most industries, **output** indexes are derived from data on the value of industry output adjusted for price change. For the remaining industries, output indexes are derived from data on the physical quantity of production.

The **labor input** series consist of the hours of all employees (production and nonproduction workers), the hours of all persons (paid employees, partners, proprietors, and unpaid family workers), or the number of employees, depending upon the industry.

Notes on the data

The industry measures are compiled from data produced by the Bureau of Labor Statistics, the Departments of Commerce, Interior, and Agriculture, the Federal Reserve Board, regulatory agencies, trade associations, and other sources.

For most industries, the productivity indexes refer to the output per hour of all employees. For some transportation industries, only indexes of output per employee are prepared. For some trade and service industries, indexes of output per hour of all persons (including self-employed) are constructed.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Industry Productivity Studies: (202) 606–5618.

International Comparisons

(Tables 43–45)

Labor force and unemployment

Description of the series

Tables 43 and 44 present comparative measures of the labor force, employment, and unemployment—approximating U.S. concepts—for the United States, Canada, Australia, Japan, and several European countries. The unemployment statistics (and, to a lesser extent, employment statistics) published by other industrial countries are not, in most cases, comparable to U.S. unemployment statistics. Therefore, the Bureau adjusts the figures for selected countries, where necessary, for all known major definitional differences. Although precise comparability may not be achieved, these adjusted figures provide a better basis for international comparisons than the figures regularly published by each country.

Definitions

For the principal U.S. definitions of the **labor force**, **employment**, and **unemployment**, see the Notes section on Employment and Unemployment Data: Household survey data.

Notes on the data

The adjusted statistics have been adapted to the age at which compulsory schooling ends in each country, rather than to the U.S. standard of 16 years of age and older. Therefore, the adjusted statistics relate to the population aged 16 and older in France, Sweden, and the United Kingdom; 15 and older in Canada, Australia, Japan, Germany, Italy from 1993 onward, and the Netherlands; and 14 and older in Italy prior to 1993. The institutional population is included in the denominator of the labor force participation rates and employment-population ratios for Japan and Germany; it is excluded for the United States and the other countries.

In the U.S. labor force survey, persons on layoff who are awaiting recall to their jobs are classified as unemployed. European and Japanese layoff practices are quite different in nature from those in the United States; therefore, strict application of the U.S. definition has not been made on this point. For further information, see *Monthly Labor Review*, December 1981, pp. 8–11.

The figures for one or more recent years for France, Germany, Italy, the Netherlands, and the United Kingdom are calculated using adjustment factors based on labor force surveys for earlier years and are considered preliminary. The recent-year measures for these countries, therefore, are subject to revision whenever data from more current labor force surveys become available.

There are breaks in the data series for the United States (1990, 1994), France (1992), Italy (1991, 1993), the Netherlands (1988), and Sweden (1987).

For the United States, the break in series reflects a major redesign of the labor force survey questionnaire and collection methodology introduced in January 1994. Revised population estimates based on the 1990 census, adjusted for the estimated undercount, also were incorporated. In 1996, previously published data for the 1990–93 period were revised to reflect the 1990 census-based population controls, adjusted for the undercount. Therefore, data for 1994 onward are not directly comparable with data for 1993 and earlier years because of the redesign, and data for 1990 onward are not directly comparable with data for 1989 and earlier years because of the introduction of the 1990 census-based population controls, adjusted for the undercount. See the Notes section on Employment and Unemployment Data of this *Review*.

For France, the 1992 break reflects the substitution of standardized European Union Statistical Office (EUROSTAT) unemployment statistics for the unemployment data estimated according to the International Labor Office (ILO) definition and published in the Organization for Economic Cooperation and Development (OECD) annual yearbook and quarterly update. This change was made because the EUROSTAT data are more up-to-date than the OECD figures. Also, since 1992, the EUROSTAT definitions are closer to the U.S. definitions than they were in prior years. The impact of this revision was to lower the unemployment rate by 0.1 percentage point in 1992 and 1993, by 0.4 percentage point in 1994, and 0.6 percentage point in 1995.

For Italy, the 1991 break reflects a revision in the method of weighting sample data. The impact was to increase the unemployment rate by approximately 0.3 percentage point, from 6.6 to 6.9 percent in 1991.

In October 1992, the survey methodol-

ogy was revised and the definition of unemployment was changed to include only those who were actively looking for a job within the 30 days preceding the survey and who were available for work. In addition, the lower age limit for the labor force was raised from 14 to 15 years. (Prior to these changes, BLS adjusted Italy's published unemployment rate downward by excluding from the unemployed those persons who had not actively sought work in the past 30 days.) The break in the series also reflects the incorporation of the 1991 population census results. The impact of these changes was to raise Italy's adjusted unemployment rate by approximately 1.2 percentage points, from 8.3 to 9.5 percent in fourth-quarter 1992. These changes did not affect employment significantly, except in 1993. Estimates by the Italian Statistical Office indicate that employment declined by about 3 percent in 1993, rather than the nearly 4 percent indicated by the data shown in table 44. This difference is attributable mainly to the incorporation of the 1991 population benchmarks in the 1993 data. Data for earlier years have not been adjusted to incorporate the 1991 census results.

For the Netherlands, a new survey questionnaire was introduced in 1992 that allowed for a closer application of ILO guidelines. EUROSTAT has revised the Dutch series back to 1988 based on the 1992 changes. The 1988 revised unemployment rate is 7.6 percent; the previous estimate for the same year was 9.3 percent.

There have been two breaks in series in the Swedish labor force survey, in 1987 and 1993. Adjustments have been made for the 1993 break back to 1987. In 1987, a new questionnaire was introduced. Questions regarding current availability were added and the period of active workseeking was reduced from 60 days to 4 weeks. These changes lowered Sweden's 1987 unemployment rate by 0.4 percentage point, from 2.3 to 1.9 percent. In 1993, the measurement period for the labor force survey was changed to represent all 52 weeks of the year rather than one week each month and a new adjustment for population totals was introduced. The impact was to raise the unemployment rate by approximately 0.5 percentage point, from 7.6 to 8.1 percent. Statistics Sweden revised its labor force survey data for 1987–92 to take into account the break in 1993. The adjustment raised the Swedish unemployment rate by 0.2 percentage point in 1987 and gradually rose to 0.5 percentage point in 1992.

Beginning with 1987, BLS has adjusted the Swedish data to classify students who also sought work as unemployed. The impact of this change was to increase the adjusted unemployment rate by 0.1 percentage point in 1987 and by 1.8 percentage points in 1994, when unemployment was higher. By 1994, the adjusted unemployment rate had risen from 7.8 to 9.6 percent due to the adjustment to include students.

The net effect of the 1987 and 1993 changes and the BLS adjustment for students seeking work lowered Sweden's 1987 unemployment rate from 2.3 to 2.2 percent.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics: (202) 606–5654.

Manufacturing productivity and labor costs

Description of the series

Table 45 presents comparative indexes of manufacturing labor productivity (output per hour), output, total hours, compensation per hour, and unit labor costs for the United States, Canada, Japan, and nine European countries. These measures are trend comparisons—that is, series that measure changes over time—rather than level comparisons. There are greater technical problems in comparing the levels of manufacturing output among countries.

BLS constructs the comparative indexes from three basic aggregate measures—output, total labor hours, and total compensation. The hours and compensation measures refer to all employed persons (wage and salary earners plus self-employed persons and unpaid family workers) in the United States, Canada, Japan, France, Germany, Norway, and Sweden, and to all employees (wage and salary earners) in the other countries.

Definitions

Output, in general, refers to value added in manufacturing from the national accounts of each country. However, the output series for Japan prior to 1970 is an index of industrial production, and the national accounts measures for the United Kingdom are essentially identical to their indexes of industrial production. While methods of deriving national accounts measures differ from country to country, BLS has reviewed these methods and determined that the series are sufficiently comparable for measuring comparative trends in productivity and unit labor costs.

The 1977–94 output data for the United States are the gross product originating (value added) measures prepared by the Bureau of Economic Analysis of the U.S. Department of Commerce. Comparable manufacturing output data currently are not available prior to 1977. The 1994–95 percent changes in manufacturing output are based on the trend shown by the industrial production index published by the U.S. Federal Reserve Board for the manufacturing sector.

U.S. gross product originating is a chain-type annual-weighted series. (For more information on the U.S. measure, see Robert E. Yuskavage, "Improved Estimates of Gross Product by Industry, 1959–94," *Survey of Current Business*, August 1996, pp. 133–55.) The Japanese value added series is based upon one set of fixed price weights for the years 1970 through 1996. Output series for the other foreign economies also employ fixed price weights, but the weights are updated periodically (for example, every 5 or 10 years).

To preserve the comparability of the U.S. measures with those for other economies, BLS uses gross product originating in manufacturing for the United States for these comparative measures. The gross product originating series differs from the manufacturing output series that BLS publishes in its news releases on quarterly measures of U.S. productivity and costs (and that underlies the measures that appear in tables 39 and 41 in this section). The quarterly measures are on a "sectoral output" basis, rather than a value-added basis. Sectoral output is gross output less intrasector transactions.

Total labor hours refers to hours worked in all countries. The measures are developed from statistics of manufacturing employment and average hours. The series used for France (from 1970 forward), Norway, and Sweden are official series published with the national accounts. Where official total hours series are not available, the measures are developed by BLS using employment figures published with the national accounts, or other comprehensive employment series, and estimates of annual hours worked. For Germany, BLS uses estimates of average hours worked developed by a research institute connected to the Ministry of Labor for use with the national accounts employment figures. For the other countries, BLS constructs its own estimates of average hours.

Denmark has not published estimates of average hours for 1994–96; therefore, the BLS measure of labor input for Denmark ends in 1993.

Total compensation (labor cost) includes all payments in cash or in-kind made directly to employees plus employer expenditures for legally required insurance programs and contractual and private benefit plans. The measures are from the national accounts of each country, except those for Belgium, which are developed by BLS using statistics on employment, average hours, and hourly compensation. For France and Sweden, compensation is increased to account for other significant taxes on payroll or employment. For the United Kingdom, compensation is reduced between 1967 and 1991 to account for employment-related subsidies. Self-employed workers are included in the all-employed-persons

measures by assuming that their hourly compensation is equal to the average for wage and salary employees.

Notes on the data

In general, the measures relate to total manufacturing as defined by the International Standard Industrial Classification. However, the measures for France (for all years) and Italy (beginning 1970) refer to mining and manufacturing less energy-related products, and the measures for Denmark include mining and exclude manufacturing handicrafts from 1960 to 1966.

The measures for recent years may be based on current indicators of manufacturing output (such as industrial production indexes), employment, average hours, and hourly compensation until national accounts and other statistics used for the long-term measures become available.

FOR ADDITIONAL INFORMATION on this series, contact the Division of Foreign Labor Statistics: (202) 606–5654.

Occupational Injury and Illness Data

(Tables 46–47)

Survey of Occupational Injuries and Illnesses

Description of the series

The Survey of Occupational Injuries and Illnesses collects data from employers about their workers' job-related nonfatal injuries and illnesses. The information that employers provide is based on records that they maintain under the Occupational Safety and Health Act of 1970. Self-employed individuals, farms with fewer than 11 employees, employers regulated by other Federal safety and health laws, and Federal, State, and local government agencies are excluded from the survey.

The survey is a Federal-State cooperative program with an independent sample selected for each participating State. A stratified random sample with a Neyman allocation is selected to represent all private industries in the State. The survey is stratified by Standard Industrial Classification and size of employment.

Definitions

Under the Occupational Safety and Health Act, employers maintain records of nonfatal work-related injuries and illnesses that involve one or more of the following: loss of consciousness, restriction of work or motion, transfer to another job, or medical treatment other than first aid.

Occupational injury is any injury such as a cut, fracture, sprain, or amputation that results from a work-related event or a single, instantaneous exposure in the work environment.

Occupational illness is an abnormal condition or disorder, other than one resulting from an occupational injury, caused by exposure to factors associated with employment. It includes acute and chronic illnesses or disease which may be caused by inhalation, absorption, ingestion, or direct contact.

Lost workday injuries and illnesses are cases that involve days away from work, or days of restricted work activity, or both.

Lost workdays include the number of workdays (consecutive or not) on which the employee was either away from work or at work in some restricted capacity, or both, because of an occupational injury or illness. BLS measures of the number and incidence rate of lost workdays were discontinued beginning with the 1993 survey. The number of days away from work or days of restricted work activity does not include the day of injury or onset of illness or any days on which the employee would not have worked, such as a Federal holiday, even though able to work.

Incidence rates are computed as the number of injuries and/or illnesses or lost work days per 100 full-time workers.

Notes on the data

The definitions of occupational injuries and illnesses are from *Recordkeeping Guidelines for Occupational Injuries and Illnesses* (U.S. Department of Labor, Bureau of Labor Statistics, September 1986).

Estimates are made for industries and employment size classes for total recordable cases, lost workday cases, days away from work cases, and nonfatal cases without lost workdays. These data also are shown separately for injuries. Illness data are available for seven categories: occupational skin diseases or disorders, dust diseases of the lungs, respiratory conditions due to toxic agents, poisoning (systemic effects of toxic agents), disorders due to physical agents (other than toxic materials), disorders associated with repeated trauma, and all other occupational illnesses.

The survey continues to measure the number of new work-related illness cases which are recognized, diagnosed, and reported during the year. Some conditions, for example, long-term latent illnesses caused by exposure to carcinogens, often are difficult to relate to the workplace and are not adequately recognized and reported. These long-term latent illnesses are believed to be understated in the survey's illness measure. In contrast, the overwhelming majority of the reported new illnesses are those which are easier to directly relate to workplace activity (for example, contact dermatitis and carpal tunnel syndrome).

Most of the estimates are in the form of incidence rates, defined as the number of injuries and illnesses per 100 equivalent full-time workers. For this purpose, 200,000 employee hours represent 100 employee years (2,000 hours per employee). Full detail on the available measures is presented in the annual bulletin, *Occupational Injuries and Illnesses: Counts, Rates, and Characteristics.*

Comparable data for more than 40 States and territories are available from the BLS Office of Safety, Health and Working Conditions. Many of these States publish data on State and local government employees in addition to private industry data.

Mining and railroad data are furnished to BLS by the Mine Safety and Health Administration and the Federal Railroad Administration. Data from these organizations are included in both the national and State data published annually.

With the 1992 survey, BLS began publishing details on serious, nonfatal incidents resulting in days away from work. Included are some major characteristics of the injured and ill workers, such as occupation, age, gender, race, and length of service, as well as the circumstances of their injuries and illnesses (nature of the disabling condition, part of body affected, event and exposure, and the source directly producing the condition). In general, these data are available nationwide for detailed industries and for individual States at more aggregated industry levels.

FOR ADDITIONAL INFORMATION on occupational injuries and illnesses, contact the Office of Occupational Safety, Health and Working Conditions at (202) 606–6180, or access the Internet at:

http://www.bls.gov/oshhome.htm

Census of Fatal Occupational Injuries

The Census of Fatal Occupational Injuries compiles a complete roster of fatal job-related injuries, including detailed data about the fatally injured workers and the fatal events. The program collects and cross checks fatality information from multiple sources, including death certificates, State and Federal workers' compensation reports, Occupational Safety and Health Administration and Mine Safety and Health Administration records, medical examiner and autopsy reports, media accounts, State motor vehicle fatality records, and follow-up questionnaires to employers.

In addition to private wage and salary workers, the self-employed, family members, and Federal, State, and local govern-

ment workers are covered by the program. To be included in the fatality census, the decedent must have been employed (that is working for pay, compensation, or profit) at the time of the event, engaged in a legal work activity, or present at the site of the incident as a requirement of his or her job.

Definition

A fatal work injury is any intentional or unintentional wound or damage to the body resulting in death from acute exposure to energy, such as heat or electricity, or kinetic energy from a crash, or from the absence of such essentials as heat or oxygen caused by a specific event or incident or series of events within a single workday or shift. Fatalities that occur during a person's commute to or from work are excluded from the census, as well as work-related illnesses, which can be difficult to identify due to long latency periods.

Notes on the data

Twenty-eight data elements are collected, coded, and tabulated in the fatality program, including information about the fatally injured worker, the fatal incident, and the machinery or equipment involved. Summary worker demographic data and event characteristics are included in a national news release that is available about 8 months after the end of the reference year. The Census of Fatal Occupational Injuries was initiated in 1992 as a joint Federal-State effort. Most States issue summary information at the time of the national news release.

FOR ADDITIONAL INFORMATION on the Census of Fatal Occupational Injuries contact the BLS Office of Safety, Health, and Working Conditions at (202) 606–6175, or the Internet at:

http://www.bls.gov/oshhome.htm

1. Labor market indicators

Selected indicators	1997	1998	1997				1998				1999
			I	II	III	IV	I	II	III	IV	I
Employment data											
Employment status of the civilian noninstitutionalized population (household survey):[1]											
Labor force participation rate	67.1	67.1	67.0	67.1	67.1	67.1	67.2	67.0	67.0	67.1	67.3
Employment-population ratio	63.8	64.1	63.5	63.8	63.9	63.9	64.1	64.1	64.0	64.1	64.4
Unemployment rate	4.9	4.5	5.2	5.0	4.9	4.7	4.6	4.4	4.5	4.4	4.3
Men	4.9	4.4	5.2	4.9	4.8	4.7	4.5	4.3	4.5	4.3	4.1
16 to 24 years	11.8	11.1	12.3	11.6	11.7	11.5	11.3	10.7	11.5	10.7	10.3
25 years and over	3.6	3.2	3.9	3.7	3.5	3.4	3.3	3.1	3.2	3.2	3.0
Women	5.0	4.6	5.3	5.1	5.0	4.7	4.8	4.6	4.6	4.5	4.4
16 to 24 years	10.7	9.8	11.4	11.0	10.4	10.1	10.1	9.6	9.9	9.4	9.9
25 years and over	3.9	3.6	4.1	3.9	4.0	3.6	3.8	3.6	3.5	3.6	3.4
Employment, nonfarm (payroll data), in thousands:[1]											
Total	122,690	125,826	121,447	122,294	123,006	123,946	124,771	125,462	126,113	126,865	127,640
Private sector	103,133	106,007	101,984	102,787	103,422	104,311	105,094	105,707	106,260	106,920	107,596
Goods-producing	24,962	25,347	24,771	24,883	25,008	25,181	25,363	25,393	25,306	25,319	25,310
Manufacturing	18,675	18,772	18,575	18,626	18,698	18,805	18,876	18,851	18,719	18,645	18,542
Service-producing	97,727	100,480	96,676	97,410	97,998	98,765	99,409	100,070	100,807	101,545	102,331
Average hours:											
Private sector	34.6	34.6	34.6	34.6	34.6	34.6	34.7	34.6	34.6	34.6	34.6
Manufacturing	42.0	41.7	41.9	42.0	42.0	42.1	42.0	41.7	41.7	41.7	41.6
Overtime	4.8	4.6	4.8	4.8	4.8	4.9	4.8	4.6	4.5	4.5	4.5
Employment Cost Index[2]											
Percent change in the ECI, compensation:											
All workers (excluding farm, household and Federal workers)	3.3	3.4	.8	.6	1.0	.8	.8	.8	1.2	.6	.4
Private industry workers	3.4	3.5	.8	.8	.8	.9	.9	.9	1.1	.6	.4
Goods-producing[3]	2.4	2.8	.4	1.0	.7	.4	.7	.8	.7	.5	.8
Service-producing[3]	3.9	3.8	1.1	.7	1.0	1.1	1.0	.8	1.3	.6	.3
State and local government workers	2.3	3.0	.4	.1	1.3	.5	.6	.3	1.5	.6	.5
Workers by bargaining status (private industry):											
Union	2.1	3.0	.2	.6	1.1	.2	.4	1.0	1.1	.5	.4
Nonunion	3.8	3.5	1.1	.8	.8	1.0	1.0	.8	1.1	.6	.5

[1] Quarterly data seasonally adjusted.

[2] Annual changes are December-to-December changes. Quarterly changes are calculated using the last month of each quarter.

[3] Goods-producing industries include mining, construction, and manufacturing. Service-producing industries include all other private sector industries.

NOTE: Dash indicates data not available.

2. Annual and quarterly percent changes in compensation, prices, and productivity

Selected measures	1997	1998	1997				1998				1999
			I	II	III	IV	I	II	III	IV	I
Compensation data[1,2]											
Employment Cost Index—compensation (wages, salaries, benefits):											
Civilian nonfarm	3.3	3.4	0.8	0.6	1.0	0.8	0.8	0.8	1.2	0.6	0.4
Private nonfarm	3.4	3.5	.8	.8	.8	.9	.9	.9	1.1	.6	.4
Employment Cost Index—wages and salaries:											
Civilian nonfarm	3.8	3.7	.9	.7	1.2	.9	.9	.7	1.3	.7	.5
Private nonfarm	3.9	3.9	1.0	.9	1.0	1.0	1.1	.9	1.3	.6	.5
Price data[1]											
Consumer Price Index (All Urban Consumers): All Items	1.7	1.6	.9	.2	.6	.1	.6	.5	.4	.2	.7
Producer Price Index:											
Finished goods	−1.2	.0	−.5	−.4	.2	−.5	−.8	.5	−.1	.4	.1
Finished consumer goods	−1.4	.0	−.6	−.2	.4	−.8	−1.0	.8	.0	.2	.2
Capital equipment	−.6	.0	.1	−.5	−.7	.5	.0	−.5	−.4	.9	−.1
Intermediate materials, supplies, and components	−.8	−3.3	−.3	.1	.2	−.8	−1.4	.2	−.5	−1.6	−.1
Crude materials	−11.3	−16.7	−11.5	−.4	1.3	−.6	−8.8	−1.8	−5.6	−2.4	−.3
Productivity data[3]											
Output per hour of all persons:											
Business sector	1.5	2.4	.7	1.8	3.6	.8	4.1	.1	2.6	4.6	4.7
Nonfarm business sector	1.2	2.2	.1	1.6	3.4	.9	3.6	.3	2.5	4.3	4.0
Nonfinancial corporations[4]	2.5	3.0	1.3	2.3	5.6	1.0	2.7	3.1	4.4	3.3	–

[1] Annual changes are December-to-December changes. Quarterly changes are calculated using the last month of each quarter. Compensation and price data are not seasonally adjusted, and the price data are not compounded.

[2] Excludes Federal and private household workers.

[3] Annual rates of change are computed by comparing annual averages. Quarterly percent changes reflect annual rates of change in quarterly indexes. The data are seasonally adjusted.

[4] Output per hour of all employees.

NOTE: Dash indicates data not available.

3. Alternative measures of wage and compensation changes

Components	Quarterly average						Four quarters ending—					
	1997	1998				1999	1997	1998				1999
	IV	I	II	III	IV	I	IV	I	II	III	IV	I
Average hourly compensation:[1]												
All persons, business sector	5.2	5.0	4.1	3.7	4.4	5.2	3.8	4.1	4.6	4.5	4.3	4.4
All persons, nonfarm business sector	4.9	4.7	4.1	3.9	4.0	4.3	3.7	3.9	4.4	4.4	4.2	4.1
Employment Cost Index—compensation:												
Civilian nonfarm[2]	.8	.8	.8	1.2	.6	.4	3.3	3.3	3.5	3.7	3.4	3.0
Private nonfarm	.9	.9	.9	1.1	.6	.4	3.4	3.5	3.5	3.8	3.5	3.0
Union	.2	.4	1.0	1.1	.5	.4	2.1	2.3	2.7	2.7	3.0	3.0
Nonunion	1.0	1.0	.8	1.1	.6	.5	3.8	3.7	3.8	4.0	3.5	3.0
State and local governments	.5	.6	.3	1.5	.6	.5	2.3	2.5	2.7	3.0	3.0	2.9
Employment Cost Index—wages and salaries:												
Civilian nonfarm[2]	.9	.9	.7	1.3	.7	.5	3.8	3.7	3.8	4.0	3.7	3.3
Private nonfarm	1.0	1.1	.9	1.3	.6	.5	3.9	4.0	4.0	4.3	3.9	3.3
Union	.5	.5	.8	1.3	.5	.4	2.8	2.9	3.0	3.2	3.3	3.1
Nonunion	1.1	1.1	.9	1.3	.7	.5	4.2	4.2	4.1	4.4	4.0	3.3
State and local governments	.6	.5	.2	1.6	.7	.4	2.7	2.8	3.0	3.0	3.1	2.9

[1] Seasonally adjusted. "Quarterly average" is percent change from a quarter ago, at an annual rate.

[2] Excludes Federal and household workers.

4. Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
TOTAL															
Civilian noninstitutional population[1]	203,133	205,220	205,085	205,270	205,497	205,699	205,919	206,104	206,270	206,719	206,873	207,036	207,236	207,427	207,632
Civilian labor force	136,297	137,673	137,498	137,407	137,481	138,081	138,116	138,193	138,547	139,347	139,271	138,816	139,091	139,019	139,406
Participation rate	67.1	67.1	67.0	66.9	66.9	67.1	67.1	67.1	67.2	67.4	67.3	67.0	67.1	67.0	67.1
Employed	129,558	131,463	131,253	131,176	131,264	131,818	131,858	132,113	132,526	133,396	133,144	133,033	133,069	133,224	133,432
Employment-population ratio[2]	63.8	64.1	64.0	63.9	63.9	64.1	64.0	64.1	64.2	64.5	64.4	64.3	64.2	64.2	64.3
Unemployed	6,739	6,210	6,245	6,231	6,217	6,263	6,258	6,080	6,021	5,950	6,127	5,783	6,022	5,795	5,975
Unemployment rate	4.9	4.5	4.5	4.5	4.5	4.5	4.5	4.4	4.3	4.3	4.4	4.2	4.3	4.2	4.3
Not in the labor force	66,837	67,547	67,587	67,863	67,998	67,618	67,803	67,911	67,723	67,372	67,602	68,220	68,145	68,408	68,225
Men, 20 years and over															
Civilian noninstitutional population[1]	89,879	90,790	90,700	90,802	90,889	91,003	91,101	91,192	91,220	91,124	91,189	91,215	91,302	91,368	91,487
Civilian labor force	69,166	69,715	69,590	69,738	69,518	69,869	69,913	70,023	70,069	70,295	70,174	69,951	69,991	69,932	70,127
Participation rate	77.0	76.8	76.7	76.8	76.5	76.8	76.7	76.8	76.8	77.1	77.0	76.7	76.7	76.5	76.7
Employed	66,284	67,135	66,994	67,056	66,940	67,252	67,362	67,573	67,553	67,884	67,577	67,713	67,608	67,399	67,633
Employment-population ratio[2]	73.7	73.9	73.9	73.8	73.7	73.9	73.9	74.1	74.1	74.5	74.1	74.2	74.0	73.8	73.9
Agriculture	2,356	2,350	2,337	2,382	2,420	2,402	2,449	2,374	2,237	2,312	2,212	2,222	2,353	2,212	2,248
Nonagricultural industries	63,927	64,785	64,657	64,674	64,520	64,860	64,913	65,199	65,316	65,572	65,365	65,492	65,255	65,186	65,385
Unemployed	2,882	2,580	2,596	2,682	2,578	2,607	2,551	2,450	2,516	2,411	2,598	2,238	2,383	2,534	2,494
Unemployment rate	4.2	3.7	3.7	3.8	3.7	3.7	3.6	3.5	3.6	3.4	3.7	3.2	3.4	3.6	3.6
Women, 20 years and over															
Civilian noninstitutional population[1]	97,889	98,786	98,735	98,778	98,901	98,994	99,037	99,135	99,181	99,686	99,746	99,833	99,923	100,008	100,131
Civilian labor force	59,198	59,198	59,613	59,469	59,708	59,804	59,826	59,896	60,078	60,718	60,622	60,533	60,788	60,729	61,092
Participation rate	60.5	60.4	60.4	60.2	60.4	60.4	60.4	60.4	60.6	60.9	60.8	60.6	60.8	60.7	61.0
Employed	56,613	57,278	57,190	57,078	57,295	57,426	57,437	57,503	57,745	58,466	58,291	58,183	58,320	58,520	58,719
Employment-population ratio[2]	57.8	58.0	57.9	57.8	57.9	58.0	58.0	58.0	58.2	58.7	58.4	58.3	58.4	58.5	58.6
Agriculture	798	768	763	781	806	767	771	734	753	808	839	834	801	831	869
Nonagricultural industries	55,815	56,510	56,427	56,297	56,489	56,659	56,666	56,769	56,992	57,659	57,452	57,349	57,519	57,689	57,849
Unemployed	2,585	2,424	2,423	2,387	2,413	2,378	2,389	2,393	2,333	2,251	2,330	2,350	2,468	2,209	2,373
Unemployment rate	4.4	4.1	4.1	4.0	4.0	4.0	4.0	4.0	3.9	3.7	3.8	3.9	4.1	3.6	3.9
Both sexes, 16 to 19 years															
Civilian noninstitutional population[1]	15,365	15,644	15,651	15,690	15,689	15,702	15,781	15,777	15,777	15,909	15,939	15,988	16,011	16,051	16,014
Civilian labor force	7,932	8,256	8,295	8,204	8,255	8,408	8,377	8,274	8,400	8,334	8,475	8,331	8,312	8,358	8,189
Participation rate	51.6	52.8	53.0	52.3	52.6	53.5	53.1	52.4	52.9	52.4	53.2	52.1	51.9	52.1	51.1
Employed	6,661	7,051	7,069	7,042	7,029	7,130	7,059	7,037	7,228	7,046	7,276	7,136	7,141	7,306	7,081
Employment-population ratio[2]	43.4	45.1	45.2	44.9	44.8	45.4	44.7	44.6	45.5	44.3	45.7	44.6	44.6	45.5	44.2
Agriculture	244	261	263	260	266	301	338	240	232	179	277	224	230	252	237
Nonagricultural industries	6,417	6,790	6,806	6,782	6,763	6,829	6,721	6,797	6,996	6,867	6,999	6,912	6,911	7,054	6,843
Unemployed	1,271	1,205	1,226	1,162	1,226	1,278	1,318	1,237	1,172	1,288	1,199	1,195	1,171	1,052	1,108
Unemployment rate	16.0	14.6	14.8	14.2	14.9	15.2	15.7	15.0	14.0	15.5	14.1	14.3	14.1	12.6	13.5
White															
Civilian noninstitutional population[1]	169,993	171,478	171,387	171,513	171,655	171,804	171,956	172,084	172,197	172,394	172,491	172,597	172,730	172,859	172,999
Civilian labor force	114,693	115,415	115,208	115,071	115,385	115,751	115,714	115,687	115,996	116,529	116,610	116,284	116,370	116,254	116,578
Participation rate	67.5	67.3	67.2	67.1	67.2	67.4	67.3	67.2	67.4	67.6	67.6	67.4	67.4	67.3	67.4
Employed	109,856	110,931	110,638	110,676	110,848	111,221	111,162	111,304	111,560	112,135	112,189	112,144	111,917	111,985	112,092
Employment-population ratio[2]	64.6	64.7	64.6	64.5	64.6	64.7	64.6	64.7	64.8	65.0	65.0	65.0	64.8	64.8	64.8
Unemployed	4,836	4,484	4,570	4,395	4,537	4,530	4,552	4,383	4,436	4,394	4,420	4,140	4,454	4,269	4,486
Unemployment rate	4.2	3.9	4.0	3.8	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.6	3.8	3.7	3.8
Black															
Civilian noninstitutional population[1]	24,003	24,373	24,349	24,381	24,418	24,458	24,496	24,529	24,529	24,665	24,697	24,729	24,765	24,798	24,833
Civilian labor force	15,529	15,982	16,025	16,045	15,937	16,027	16,163	16,201	16,157	16,356	16,242	16,212	16,286	16,303	16,300
Participation rate	64.7	65.6	65.8	65.8	65.3	65.5	66.0	66.0	65.8	66.3	65.8	65.6	65.8	65.7	65.6
Employed	13,969	14,556	14,662	14,511	14,517	14,584	14,776	14,804	14,884	15,085	14,900	14,904	15,029	15,079	15,103
Employment-population ratio[2]	58.2	59.7	60.2	59.5	59.5	59.6	60.3	60.4	60.6	61.2	60.3	60.3	60.7	60.8	60.8
Unemployed	1,560	1,426	1,363	1,534	1,420	1,443	1,387	1,397	1,273	1,271	1,342	1,308	1,257	1,224	1,197
Unemployment rate	10.0	8.9	8.5	9.6	8.9	9.0	8.6	8.6	7.9	7.8	8.3	8.1	7.7	7.5	7.3

See footnotes at end of table.

4. Continued—Employment status of the population, by sex, age, race, and Hispanic origin, monthly data seasonally adjusted

[Numbers in thousands]

Employment status	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Hispanic origin															
Civilian noninstitutional population[1]	20,321	21,070	21,036	21,097	21,159	21,224	21,286	21,349	21,405	21,296	21,355	21,414	21,483	21,548	21,618
Civilian labor force	13,796	14,317	14,375	14,267	14,316	14,457	14,437	14,389	14,488	14,511	14,591	14,570	14,543	14,535	14,643
Participation rate	67.9	67.9	68.3	67.6	67.7	68.1	67.8	67.4	67.7	68.1	68.3	68.0	67.7	67.5	67.7
Employed	12,726	13,291	13,301	13,245	13,257	13,394	13,382	13,345	13,383	13,550	13,610	13,732	13,541	13,558	13,654
Employment-population ratio[2]	62.6	63.1	63.2	62.8	62.7	63.1	62.9	62.5	62.5	63.6	63.7	64.1	63.0	62.9	63.2
Unemployed	1,069	1,026	1,074	1,022	1,059	1,063	1,055	1,044	1,105	960	980	838	1,002	977	989
Unemployment rate	7.7	7.2	7.5	7.2	7.4	7.4	7.3	7.3	7.6	6.6	6.7	5.8	6.9	6.7	6.8

[1] The population figures are not seasonally adjusted.

[2] Civilian employment as a percent of the civilian noninstitutional population.

NOTE: Detail for the above race and Hispanic-origin groups will not sum to totals because data for the "other races" groups are not presented and Hispanics are included in both the white and black population groups.

5. Selected employment indicators, monthly data seasonally adjusted

[In thousands]

Selected categories	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Characteristic															
Employed, 16 years and over	129,558	131,463	131,253	131,176	131,264	131,818	131,858	132,113	132,526	133,396	133,144	133,033	133,069	133,224	133,432
Men	69,685	70,693	70,592	70,629	70,503	70,841	70,925	71,182	71,204	71,459	71,276	71,352	71,225	71,198	71,321
Women	59,873	60,771	60,661	60,547	60,761	60,977	60,933	60,931	61,322	61,937	61,869	61,680	61,845	62,026	62,112
Married men, spouse present	42,642	42,923	42,648	42,850	42,874	43,170	43,090	43,209	43,227	43,542	43,016	43,114	43,190	42,882	43,291
Married women, spouse present	32,755	32,872	32,820	32,719	32,670	32,891	33,037	32,953	33,093	33,652	33,092	33,134	33,285	33,487	33,802
Women who maintain families	7,775	7,904	7,909	7,875	7,928	7,984	7,940	7,969	8,087	8,076	8,113	8,148	8,050	8,039	7,991
Class of worker															
Agriculture:															
Wage and salary workers	1,890	2,000	1,857	2,010	2,111	2,145	2,247	2,005	1,912	1,987	1,895	1,893	1,908	1,919	1,911
Self-employed workers	1,457	1,341	1,445	1,374	1,342	1,290	1,282	1,304	1,304	1,298	1,381	1,376	1,439	1,348	1,369
Unpaid family workers	51	38	44	32	31	40	33	40	34	30	44	39	31	33	37
Nonagricultural industries:															
Wage and salary workers	116,983	119,019	118,733	118,647	118,840	119,148	119,275	119,718	120,380	121,115	121,066	121,005	120,785	121,168	121,005
Government	18,131	18,383	18,467	18,374	18,332	18,448	18,547	18,607	18,686	18,913	18,782	18,699	18,709	18,672	19,110
Private industries	98,852	100,637	100,266	100,273	100,508	100,700	100,728	101,111	101,694	102,202	102,283	102,306	102,076	102,496	101,895
Private households	915	962	962	966	871	918	946	969	943	881	849	917	941	910	1,001
Other	97,937	99,674	99,304	99,307	99,637	99,782	99,782	100,142	100,751	101,321	101,434	101,389	101,135	101,586	100,894
Self-employed workers	9,056	8,962	8,971	9,060	8,955	9,096	9,030	8,929	8,814	8,830	8,658	8,650	8,813	8,687	8,857
Unpaid family workers	120	103	97	91	88	88	95	112	122	121	114	125	63	60	87
Persons at work part time[1]															
All industries:															
Part time for economic reasons	4,068	3,665	3,792	3,757	3,503	3,419	3,404	3,340	3,417	3,562	3,426	3,564	3,408	3,422	3,418
Slack work or business conditions	2,286	2,095	2,183	2,299	2,019	1,913	2,031	1,910	1,927	2,093	1,984	2,045	1,920	1,946	2,092
Could only find part-time work	1,468	1,258	1,248	1,213	1,188	1,168	1,136	1,157	1,148	1,115	1,141	1,208	1,124	1,137	1,014
Part time for noneconomic reasons	18,149	18,530	18,619	18,589	18,653	18,687	18,667	18,634	18,674	18,485	18,642	18,545	18,882	18,632	18,666
Nonagricultural industries:															
Part time for economic reasons	3,879	3,501	3,618	3,606	3,339	3,191	3,253	3,191	3,257	3,413	3,298	3,374	3,224	3,247	3,232
Slack work or business conditions	2,167	1,997	2,102	2,193	1,926	1,800	1,927	1,824	1,841	1,989	1,906	1,955	1,831	1,838	1,944
Could only find part-time work	1,433	1,228	1,210	1,182	1,155	1,132	1,110	1,130	1,116	1,094	1,108	1,159	1,092	1,111	1,010
Part time for noneconomic reasons	17,564	17,954	17,992	17,982	18,031	18,161	18,107	18,110	18,155	17,921	18,061	17,944	18,320	18,098	18,016

[1] Excludes persons "with a job but not at work" during the survey period for such reasons as vacation, illness, or industrial disputes.

6. Selected unemployment indicators, monthly data seasonally adjusted

[Unemployment rates]

Selected categories	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Characteristic															
Total, all workers	4.9	4.5	4.5	4.5	4.5	4.5	4.5	4.4	4.3	4.3	4.4	4.2	4.3	4.2	4.3
Both sexes, 16 to 19 years	16.0	14.6	14.8	14.2	14.9	15.2	15.7	15.0	14.0	15.5	14.1	14.3	14.1	12.6	13.5
Men, 20 years and over	4.2	3.7	3.7	3.8	3.7	3.7	3.6	3.5	3.6	3.4	3.7	3.2	3.4	3.6	3.6
Women, 20 years and over	4.4	4.1	4.1	4.0	4.0	4.0	4.0	4.0	3.9	3.7	3.8	3.9	4.1	3.6	3.9
White, total	4.2	3.9	4.0	3.8	3.9	3.9	3.9	3.8	3.8	3.8	3.8	3.6	3.8	3.7	3.8
Both sexes, 16 to 19 years	13.6	12.6	13.4	11.5	12.9	12.8	13.5	13.0	12.6	13.0	11.8	11.9	12.1	11.0	12.1
Men, 16 to 19 years	14.3	14.1	14.4	13.2	14.2	14.7	14.1	14.1	14.5	14.1	12.2	12.7	12.6	11.9	11.8
Women, 16 to 19 years	12.8	10.9	12.3	9.7	11.5	10.8	13.0	11.6	10.6	11.9	11.4	11.1	11.6	10.1	12.5
Men, 20 years and over	3.6	3.2	3.3	3.3	3.3	3.3	3.2	3.1	3.2	3.1	3.3	2.8	3.0	3.2	3.2
Women, 20 years and over	3.7	3.4	3.4	3.4	3.5	3.4	3.4	3.4	3.3	3.3	3.2	3.3	3.6	3.2	3.4
Black, total	10.0	8.9	8.5	9.6	8.9	9.0	8.6	8.6	7.9	7.8	8.3	8.1	7.7	7.5	7.3
Both sexes, 16 to 19 years	32.4	27.6	22.5	28.7	28.1	29.2	28.7	27.5	22.4	29.8	29.2	31.0	28.1	24.1	22.9
Men, 16 to 19 years	36.5	30.1	22.4	30.2	29.7	32.7	34.7	33.0	27.3	34.2	31.6	32.9	33.0	26.2	26.7
Women, 16 to 19 years	28.7	25.3	22.6	27.0	26.8	25.7	23.5	22.1	17.6	25.0	27.0	29.1	23.5	22.0	19.6
Men, 20 years and over	8.5	7.4	7.1	8.7	7.6	7.1	6.9	7.0	6.7	5.9	6.7	5.8	6.1	6.6	6.1
Women, 20 years and over	8.8	7.9	7.8	7.9	7.6	7.9	7.5	7.6	7.0	6.6	7.1	7.2	6.8	6.4	6.6
Hispanic origin, total	7.7	7.2	7.5	7.2	7.4	7.4	7.3	7.3	7.6	6.6	6.7	5.8	6.9	6.7	6.8
Married men, spouse present	2.7	2.4	2.2	2.3	2.3	2.3	2.3	2.2	2.3	2.3	2.4	2.1	2.3	2.4	2.2
Married women, spouse present	3.1	2.9	2.9	2.8	3.1	2.7	2.8	2.9	2.8	2.8	2.8	2.7	2.9	2.5	2.7
Women who maintain families	8.1	7.2	7.1	6.9	6.8	7.6	6.9	6.9	6.3	6.1	6.5	6.7	7.2	6.0	6.6
Full-time workers	4.8	4.3	4.4	4.4	4.4	4.3	4.3	4.2	4.2	4.1	4.3	4.0	4.2	4.0	4.0
Part-time workers	5.5	5.3	5.2	5.2	5.3	5.3	5.5	5.4	5.2	5.2	4.9	4.9	4.9	5.1	5.4
Industry															
Nonagricultural wage and salary workers	5.0	4.6	4.6	4.6	4.7	4.8	4.6	4.5	4.4	4.3	4.3	4.2	4.4	4.2	4.4
Mining	3.8	3.2	4.0	3.9	3.6	3.0	2.4	2.2	4.3	7.4	7.7	5.3	9.3	5.9	4.7
Construction	9.0	7.5	7.9	6.8	7.4	8.6	6.7	7.0	6.4	7.3	7.5	6.7	7.4	7.2	7.5
Manufacturing	4.2	3.9	3.6	4.3	3.9	4.0	3.9	3.8	4.0	3.5	3.7	3.4	3.3	3.4	3.8
Durable goods	3.5	3.4	3.0	4.1	3.5	3.7	3.2	3.2	3.4	3.4	3.3	2.9	3.1	3.3	3.6
Nondurable goods	5.1	4.7	4.6	4.6	4.5	4.6	5.1	4.8	4.9	3.8	4.3	4.1	3.7	3.6	4.0
Transportation and public utilities	3.5	3.4	3.5	3.4	3.5	3.5	3.5	3.2	3.2	2.5	3.2	2.9	2.8	3.3	2.8
Wholesale and retail trade	6.2	5.5	5.6	5.6	5.6	5.7	5.6	5.2	5.5	5.2	5.2	5.4	5.4	5.3	5.4
Finance, insurance, and real estate	3.0	2.5	2.2	2.1	2.7	2.4	2.5	2.8	2.8	2.4	2.4	1.9	3.2	2.1	2.3
Services	4.6	4.5	4.6	4.6	4.7	4.5	4.7	4.6	4.1	4.1	4.0	4.2	4.1	3.9	4.2
Government workers	2.6	2.3	2.2	2.4	2.2	2.2	2.2	2.1	2.0	2.2	2.3	2.1	2.5	2.6	2.4
Agricultural wage and salary workers	9.1	8.3	8.4	8.2	7.4	7.9	6.7	7.6	8.3	9.6	11.3	9.5	9.7	10.7	9.6
Educational attainment[1]															
Less than a high school diploma	8.1	7.1	7.1	7.1	7.1	6.9	6.9	7.1	7.0	7.4	7.5	6.1	6.6	6.7	6.7
High school graduates, no college	4.3	4.0	4.0	4.1	4.0	4.0	4.0	3.9	3.8	3.5	3.4	3.4	3.5	3.6	3.9
Some college, less than a bachelor's degree	3.3	3.0	2.9	3.0	2.8	3.0	3.0	2.8	2.8	2.9	3.1	2.8	3.0	2.8	2.5
College graduates	2.0	1.8	1.8	1.7	1.8	1.7	1.9	1.8	1.8	1.8	1.9	1.9	2.1	1.9	2.0

[1] Data refer to persons 25 years and over.

7. Duration of unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Weeks of unemployment	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Less than 5 weeks	2,538	2,622	2,553	2,626	2,652	2,638	2,754	2,546	2,614	2,353	2,601	2,478	2,788	2,467	2,529
5 to 14 weeks	2,138	1,950	2,022	1,975	1,956	1,968	1,896	1,983	1,839	2,071	1,944	1,891	1,867	1,816	1,736
15 weeks and over	2,062	1,637	1,641	1,606	1,644	1,636	1,598	1,611	1,578	1,469	1,550	1,434	1,446	1,523	1,668
15 to 26 weeks	995	763	833	783	810	732	732	752	754	753	766	736	773	794	824
27 weeks and over	1,067	875	808	823	834	904	866	859	824	716	784	697	673	729	844
Mean duration, in weeks	15.8	14.5	14.1	14.3	13.7	14.3	14.1	14.4	14.1	13.4	13.8	13.5	13.1	13.4	14.5
Median duration, in weeks	8.0	6.7	6.7	6.7	6.8	6.6	5.9	6.7	6.7	6.9	7.0	6.9	6.1	6.7	6.2

8. Unemployed persons by reason for unemployment, monthly data seasonally adjusted

[Numbers in thousands]

Reason for unemployment	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Job losers[1]	3,037	2,822	2,832	2,865	2,834	2,865	2,813	2,758	2,754	2,696	2,738	2,563	2,700	2,663	2,683
On temporary layoff	931	866	851	931	937	909	857	850	841	864	849	812	838	821	892
Not on temporary layoff	2,106	1,957	1,981	1,934	1,897	1,956	1,956	1,908	1,913	1,832	1,889	1,751	1,862	1,842	1,791
Job leavers	795	734	754	770	734	727	730	677	709	699	751	780	841	789	864
Reentrants	2,338	2,132	2,112	2,072	2,124	2,161	2,142	2,130	2,031	1,993	2,110	1,988	2,044	2,040	2,057
New entrants	569	520	517	474	507	501	577	534	504	537	509	431	469	415	349
Percent of unemployed															
Job losers[1]	45.1	45.5	45.6	46.4	45.7	45.8	44.9	45.2	45.9	45.5	44.8	44.5	44.6	45.1	45.1
On temporary layoff	13.8	13.9	13.7	15.1	15.1	14.5	13.7	13.9	14.0	14.6	13.9	14.1	13.9	13.9	15.0
Not on temporary layoff	31.3	31.5	31.9	31.3	30.6	31.3	31.2	31.3	31.9	30.9	30.9	30.4	30.8	31.2	30.1
Job leavers	11.8	11.8	12.1	12.5	11.8	11.6	11.7	11.1	11.8	11.8	12.3	13.5	13.9	13.4	14.5
Reentrants	34.7	34.3	34.0	33.5	34.3	34.6	34.2	34.9	33.9	33.6	34.5	34.5	33.8	34.5	34.6
New entrants	8.4	8.4	8.3	7.7	8.2	8.0	9.2	8.8	8.4	9.1	8.3	7.5	7.7	7.0	5.9
Percent of civilian labor force															
Job losers[1]	2.2	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	1.9	2.0	1.8	1.9	1.9	1.9
Job leavers	.6	.5	.5	.6	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.6
Reentrants	1.7	1.5	1.5	1.5	1.5	1.6	1.6	1.5	1.5	1.4	1.5	1.4	1.5	1.5	1.5
New entrants	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.3

[1] Includes persons who completed temporary jobs.

9. Unemployment rates by sex and age, monthly data seasonally adjusted

[Civilian workers]

Sex and age	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Total, 16 years and over	4.9	4.5	4.5	4.5	4.5	4.5	4.5	4.4	4.3	4.3	4.4	4.2	4.3	4.2	4.3
16 to 24 years	11.3	10.4	10.6	10.4	10.8	10.9	10.5	9.9	9.8	10.1	10.2	10.0	10.0	9.4	9.9
16 to 19 years	16.0	14.6	14.8	14.2	14.9	15.2	15.7	15.0	14.0	15.5	14.1	14.3	14.1	12.6	13.5
16 to 17 years	18.2	17.2	18.0	15.7	17.1	17.6	18.2	18.0	16.9	18.4	15.5	16.6	16.9	15.9	16.1
18 to 19 years	14.5	12.8	12.6	13.1	13.5	13.5	14.0	13.0	12.1	13.1	13.1	12.8	12.3	10.6	11.8
20 to 24 years	8.5	7.9	8.1	8.2	8.4	8.2	7.3	6.9	7.2	6.9	7.7	7.4	7.6	7.5	7.7
25 years and over	3.8	3.4	3.4	3.4	3.3	3.4	3.4	3.3	3.3	3.2	3.3	3.1	3.2	3.2	3.2
25 to 54 years	3.9	3.5	3.5	3.5	3.5	3.5	3.5	3.4	3.4	3.3	3.4	3.1	3.3	3.2	3.3
55 years and over	3.0	2.7	2.6	2.8	2.6	2.7	2.7	3.0	3.0	2.9	2.9	2.9	2.9	2.6	3.0
Men, 16 years and over	4.9	4.4	4.4	4.5	4.4	4.5	4.4	4.3	4.3	4.2	4.3	3.9	4.1	4.2	4.2
16 to 24 years	11.8	11.1	11.1	11.3	11.3	11.9	10.9	10.3	10.8	10.7	10.1	9.9	10.5	10.2	10.7
16 to 19 years	16.9	16.2	15.9	15.9	15.9	17.4	16.7	16.5	16.4	16.9	14.6	15.0	14.8	13.3	14.1
16 to 17 years	19.1	19.1	20.5	18.0	18.9	20.2	20.9	20.0	19.9	19.7	15.3	16.9	19.2	17.7	16.5
18 to 19 years	15.4	14.1	12.9	14.3	14.2	15.1	13.7	14.4	14.0	14.7	14.1	13.6	12.2	10.6	12.8
20 to 24 years	8.9	8.1	8.3	8.5	8.5	8.6	7.5	6.6	7.3	7.1	7.5	7.0	8.0	8.3	8.7
25 years and over	3.6	3.2	3.2	3.3	3.2	3.2	3.2	3.1	3.2	3.0	3.2	2.7	2.9	3.1	3.0
25 to 54 years	3.7	3.3	3.3	3.4	3.3	3.2	3.3	3.1	3.2	3.1	3.3	2.8	2.9	3.1	3.0
55 years and over	3.1	2.8	2.5	3.0	2.6	3.0	2.9	3.1	3.1	2.8	3.0	2.6	2.6	2.7	2.6
Women, 16 years and over	5.0	4.6	4.7	4.5	4.7	4.5	4.7	4.6	4.3	4.3	4.5	4.5	4.6	4.1	4.4
16 to 24 years	10.7	9.8	10.1	9.5	10.4	9.8	10.1	9.5	8.7	9.5	10.2	10.0	9.5	8.6	9.0
16 to 19 years	15.0	12.9	13.6	12.2	13.8	12.9	14.8	13.3	11.3	13.9	13.7	13.6	13.4	11.8	12.9
16 to 17 years	17.2	15.1	15.1	13.2	15.5	14.9	15.4	15.9	13.8	16.9	15.7	16.2	14.5	13.8	15.7
18 to 19 years	13.6	11.5	12.3	11.7	12.8	11.9	14.3	11.4	10.2	11.5	12.1	11.9	12.5	10.6	10.7
20 to 24 years	8.1	7.8	7.9	7.7	8.2	7.8	7.1	7.1	7.1	6.7	8.0	7.8	7.1	6.7	6.7
25 years and over	3.9	3.6	3.6	3.5	3.5	3.6	3.6	3.6	3.5	3.4	3.3	3.4	3.6	3.2	3.5
25 to 54 years	4.1	3.8	3.7	3.6	3.7	3.7	3.8	3.8	3.6	3.5	3.5	3.5	3.7	3.4	3.5
55 years and over	2.9	2.6	2.6	2.6	2.7	2.3	2.5	2.9	2.8	3.1	2.7	3.2	3.3	2.6	3.5

10. Unemployment rates by State, seasonally adjusted

State	May 1998	Apr. 1999	May 1999[P]	State	May 1998	Apr. 1999	May 1999[P]
Alabama	4.3	4.6	4.7	Missouri	4.5	3.2	3.5
Alaska	5.8	5.9	6.6	Montana	5.7	5.4	5.1
Arizona	4.3	4.4	4.7	Nebraska	2.7	2.5	2.6
Arkansas	5.5	4.4	4.4	Nevada	4.7	4.1	4.3
California	6.0	5.7	5.2	New Hampshire	3.0	2.4	2.5
Colorado	4.0	3.0	2.9	New Jersey	4.7	4.5	4.7
Connecticut	3.4	3.4	3.4	New Mexico	6.1	6.3	6.1
Delaware	4.1	3.3	3.6	New York	5.6	5.0	5.1
District of Columbia	9.0	6.9	6.5	North Carolina	3.4	2.8	3.1
Florida	4.3	4.3	4.1	North Dakota	3.3	2.6	2.7
Georgia	4.3	3.9	3.7	Ohio	4.3	4.3	4.1
Hawaii	6.4	5.5	5.5	Oklahoma	4.5	4.2	3.5
Idaho	4.9	4.7	4.9	Oregon	5.6	5.3	5.1
Illinois	4.2	3.9	4.4	Pennsylvania	4.6	4.2	3.8
Indiana	3.0	2.5	3.0	Rhode Island	5.0	3.1	3.7
Iowa	2.7	2.7	2.6	South Carolina	3.8	4.2	4.2
Kansas	3.9	3.4	3.4	South Dakota	2.9	2.4	2.5
Kentucky	4.8	4.3	4.4	Tennessee	4.2	4.1	3.8
Louisiana	5.8	5.1	4.4	Texas	4.7	4.7	4.9
Maine	4.4	3.6	4.3	Utah	3.9	3.0	3.2
Maryland	4.8	3.9	3.8	Vermont	3.4	2.6	2.8
Massachusetts	3.5	2.9	3.1	Virginia	2.9	2.7	3.0
Michigan	3.7	4.0	3.9	Washington	4.7	4.5	4.5
Minnesota	2.6	2.1	2.5	West Virginia	6.8	6.8	6.7
Mississippi	5.4	4.6	4.8	Wisconsin	3.2	3.1	3.4
				Wyoming	4.9	4.5	4.9

[P] = preliminary

11. Employment of workers on nonfarm payrolls by State, seasonally adjusted

[In thousands]

State	May 1998	Apr. 1999	May 1999[P]	State	May 1998	Apr. 1999	May 1999[P]
Alabama	1,904.3	1,932.0	1,937.6	Missouri	2,687.6	2,704.0	2,704.3
Alaska	274.9	277.5	277.1	Montana	372.7	380.2	380.0
Arizona	2,070.2	2,133.6	2,138.5	Nebraska	872.5	876.9	875.9
Arkansas	1,120.2	1,133.2	1,133.7	Nevada	919.4	955.5	962.5
California	13,525.6	13,881.7	13,938.2	New Hampshire	586.5	597.8	596.0
Colorado	2,045.5	2,072.5	2,086.1	New Jersey	3,797.9	3,854.8	3,860.1
Connecticut	1,640.8	1,665.4	1,663.7	New Mexico	720.0	729.3	729.9
Delaware	397.9	409.4	411.3	New York	8,222.7	8,345.0	8,354.4
District of Columbia	615.2	615.1	615.2	North Carolina	3,757.3	3,834.9	3,823.1
Florida	6,644.0	6,867.3	6,884.8	North Dakota	319.7	321.4	320.6
Georgia	3,721.9	3,834.6	3,844.8	Ohio	5,474.9	5,510.5	5,514.0
Hawaii	530.4	528.9	530.3	Oklahoma	1,443.0	1,470.9	1,474.1
Idaho	520.2	536.4	534.6	Oregon	1,555.7	1,587.0	1,585.8
Illinois	5,878.7	5,967.9	5,973.6	Pennsylvania	5,495.2	5,541.1	5,529.7
Indiana	2,914.2	2,960.9	2,959.4	Rhode Island	457.3	464.2	461.3
Iowa	1,441.3	1,475.3	1,479.9	South Carolina	1,782.6	1,825.1	1,829.0
Kansas	1,309.8	1,341.8	1,340.2	South Dakota	360.9	367.7	368.0
Kentucky	1,749.2	1,783.0	1,783.6	Tennessee	2,633.0	2,657.3	2,662.9
Louisiana	1,896.2	1,914.3	1,914.2	Texas	8,908.9	9,137.7	9,158.9
Maine	567.1	581.4	581.5	Utah	1,020.3	1,046.0	1,047.5
Maryland	2,309.9	2,364.1	2,365.4	Vermont	285.7	291.1	291.5
Massachusetts	3,170.6	3,217.5	3,218.4	Virginia	3,303.0	3,363.1	3,369.7
Michigan	4,516.5	4,557.2	4,565.8	Washington	2,589.8	2,643.9	2,645.9
Minnesota	2,557.3	2,603.1	2,603.7	West Virginia	727.5	723.0	721.2
Mississippi	1,130.7	1,133.3	1,136.2	Wisconsin	2,714.7	2,740.7	2,743.3
				Wyoming	229.5	231.8	231.9

[P] = preliminary

NOTE: Some data in this table may differ from data published elsewhere because of the continual updating of the data base.

12. Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

[In thousands]

Industry	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May[p]	June[p]
TOTAL	122,690	125,826	125,689	125,808	126,170	126,361	126,567	126,841	127,186	127,378	127,730	127,813	128,134	128,129	128,397
PRIVATE SECTOR	103,133	106,007	105,913	106,009	106,301	106,470	106,654	106,893	107,213	107,386	107,676	107,726	108,035	108,051	108,301
GOODS-PRODUCING	24,962	25,347	25,381	25,240	25,344	25,333	25,306	25,298	25,354	25,315	25,329	25,285	25,288	25,196	25,184
Mining	596	590	593	588	585	583	578	574	570	560	553	550	538	531	528
Metal mining	54	50	50	50	50	50	50	50	50	50	50	50	49	49	48
Oil and gas extraction	339	339	343	339	336	334	329	325	320	312	306	305	294	288	287
Nonmetallic minerals, except fuels	108	109	109	109	109	109	109	109	110	109	109	108	109	108	108
Construction	5,691	5,985	5,962	5,990	6,005	6,009	6,042	6,085	6,173	6,170	6,238	6,232	6,277	6,238	6,264
General building contractors	1,310	1,372	1,369	1,377	1,381	1,382	1,389	1,394	1,404	1,410	1,426	1,429	1,428	1,427	1,432
Heavy construction, except building	799	838	835	842	842	837	843	850	876	871	869	864	874	854	859
Special trades contractors	3,582	3,744	3,758	3,771	3,782	3,790	3,810	3,841	3,893	3,889	3,943	3,939	3,975	3,957	3,973
Manufacturing	18,675	18,772	18,826	18,662	18,754	18,741	18,686	18,639	18,611	18,585	18,538	18,503	18,473	18,427	18,392
Production workers	12,907	12,930	12,970	12,801	12,891	12,893	12,849	12,808	12,795	12,773	12,730	12,714	12,696	12,662	12,619
Durable goods	11,010	11,170	11,210	11,066	11,177	11,159	11,128	11,092	11,074	11,050	11,027	11,014	10,993	10,970	10,957
Production workers	7,553	7,643	7,668	7,521	7,634	7,628	7,605	7,577	7,568	7,548	7,529	7,527	7,519	7,501	7,482
Lumber and wood products	796	813	811	812	813	815	817	820	823	826	827	827	824	824	823
Furniture and fixtures	512	530	531	532	532	532	532	532	534	534	535	535	536	537	537
Stone, clay, and glass products	552	563	562	563	564	565	566	568	570	569	571	569	570	570	569
Primary metal industries	711	712	716	705	713	712	705	700	699	696	695	693	691	688	687
Fabricated metal products	1,479	1,501	1,503	1,491	1,502	1,500	1,498	1,494	1,493	1,495	1,491	1,490	1,489	1,487	1,485
Industrial machinery and equipment	2,168	2,203	2,215	2,208	2,203	2,197	2,188	2,177	2,167	2,148	2,146	2,139	2,132	2,126	2,126
Computer and office equipment	376	379	380	379	378	377	374	373	370	362	362	360	361	360	361
Electronic and other electrical equipment	1,689	1,704	1,715	1,705	1,698	1,692	1,683	1,673	1,669	1,663	1,659	1,659	1,658	1,658	1,654
Electronic components and accessories	650	660	664	659	655	651	647	643	640	637	636	636	635	636	636
Transportation equipment	1,845	1,884	1,891	1,788	1,894	1,891	1,892	1,887	1,882	1,884	1,871	1,873	1,864	1,853	1,851
Motor vehicles and equipment	986	990	994	887	997	996	998	996	994	996	989	992	996	996	998
Aircraft and parts	501	524	526	526	526	525	523	520	518	517	510	511	503	497	492
Instruments and related products	866	868	872	869	866	863	859	855	851	849	847	844	842	841	839
Miscellaneous manufacturing industries	392	393	394	393	392	392	388	386	386	386	385	385	387	386	386
Nondurable goods	7,665	7,602	7,616	7,596	7,577	7,582	7,558	7,547	7,537	7,535	7,511	7,489	7,480	7,457	7,435
Production workers	5,354	5,287	5,302	5,280	5,257	5,265	5,244	5,231	5,227	5,225	5,201	5,187	5,177	5,161	5,137
Food and kindred products	1,685	1,686	1,686	1,684	1,675	1,687	1,685	1,690	1,693	1,699	1,695	1,693	1,689	1,687	1,681
Tobacco products	41	41	40	40	40	40	40	40	40	40	40	39	38	38	39
Textile mill products	616	598	601	597	594	593	590	586	582	579	575	571	567	563	559
Apparel and other textile products	824	763	768	764	755	751	738	729	724	718	707	702	698	690	684
Paper and allied products	683	675	676	674	673	672	669	666	666	664	664	662	662	661	658
Printing and publishing	1,552	1,565	1,568	1,567	1,566	1,565	1,565	1,564	1,560	1,561	1,559	1,557	1,555	1,551	1,552
Chemicals and allied products	1,036	1,043	1,044	1,044	1,044	1,043	1,042	1,043	1,042	1,041	1,041	1,037	1,038	1,036	1,035
Petroleum and coal products	141	140	141	140	140	140	140	140	140	139	139	139	139	138	138
Rubber and miscellaneous plastics products	996	1,009	1,009	1,004	1,009	1,010	1,009	1,010	1,012	1,016	1,015	1,014	1,019	1,019	1,015
Leather and leather products	91	83	83	82	81	81	80	79	78	78	76	75	75	74	74
SERVICE-PRODUCING	97,727	100,480	100,308	100,568	100,826	101,028	101,261	101,543	101,832	102,063	102,401	102,528	102,846	102,933	103,213
Transportation and public utilities	6,408	6,600	6,589	6,606	6,625	6,637	6,657	6,671	6,684	6,708	6,723	6,732	6,750	6,758	6,787
Transportation	4,123	4,276	4,265	4,281	4,305	4,313	4,327	4,335	4,340	4,356	4,367	4,378	4,397	4,403	4,424
Railroad transportation	227	231	231	231	232	233	232	230	231	233	233	235	234	235	236
Local and interurban passenger transit	452	468	466	469	475	471	473	474	474	474	475	476	483	481	488
Trucking and warehousing	1,677	1,745	1,744	1,749	1,755	1,759	1,766	1,770	1,769	1,786	1,789	1,796	1,800	1,800	1,809
Water transportation	179	180	178	181	184	183	183	184	183	182	181	177	180	180	180
Transportation by air	1,134	1,183	1,179	1,183	1,190	1,196	1,199	1,201	1,205	1,204	1,213	1,218	1,220	1,225	1,227
Pipelines, except natural gas	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Transportation services	441	455	453	454	455	457	460	462	464	463	462	462	466	468	470
Communications and public utilities	2,285	2,324	2,324	2,325	2,320	2,324	2,330	2,336	2,344	2,352	2,356	2,354	2,353	2,355	2,363
Communications	1,419	1,469	1,470	1,472	1,467	1,472	1,480	1,484	1,492	1,502	1,507	1,506	1,508	1,512	1,516
Electric, gas, and sanitary services	866	855	854	853	853	852	850	852	852	850	849	848	845	843	847
Wholesale trade	6,648	6,831	6,826	6,836	6,846	6,871	6,876	6,891	6,901	6,924	6,937	6,947	6,965	6,973	6,982
Retail trade	21,966	22,296	22,257	22,321	22,353	22,382	22,392	22,443	22,525	22,556	22,648	22,611	22,724	22,740	22,789
Building materials and garden supplies	929	948	945	947	950	954	957	961	967	972	979	982	982	979	985
General merchandise stores	2,701	2,730	2,725	2,728	2,733	2,745	2,744	2,750	2,758	2,773	2,781	2,794	2,799	2,786	2,786
Department stores	2,380	2,426	2,423	2,426	2,429	2,437	2,441	2,447	2,456	2,470	2,475	2,489	2,499	2,489	2,488

See footnotes at end of table.

12. Continued—Employment of workers on nonfarm payrolls by industry, monthly data seasonally adjusted

[In thousands]

Industry	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May[P]	June[P]
Food stores	3,478	3,482	3,474	3,484	3,483	3,486	3,485	3,488	3,487	3,481	3,492	3,490	3,492	3,486	3,479
Automotive dealers and service stations	2,311	2,341	2,338	2,343	2,345	2,349	2,356	2,361	2,370	2,377	2,390	2,392	2,399	2,400	2,402
New and used car dealers	1,046	1,048	1,046	1,048	1,048	1,050	1,052	1,055	1,059	1,061	1,065	1,069	1,074	1,077	1,080
Apparel and accessory stores	1,109	1,143	1,145	1,148	1,149	1,150	1,144	1,148	1,147	1,152	1,167	1,167	1,163	1,171	1,173
Furniture and home furnishings stores	999	1,026	1,022	1,026	1,031	1,033	1,038	1,042	1,048	1,055	1,064	1,070	1,081	1,082	1,089
Eating and drinking places	7,646	7,760	7,740	7,767	7,779	7,782	7,787	7,808	7,857	7,843	7,855	7,785	7,863	7,878	7,910
Miscellaneous retail establishments	2,794	2,867	2,868	2,878	2,883	2,883	2,881	2,885	2,891	2,903	2,920	2,931	2,945	2,958	2,965
Finance, insurance, and real estate	7,109	7,407	7,400	7,430	7,445	7,467	7,494	7,520	7,542	7,570	7,581	7,595	7,611	7,618	7,642
Finance	3,424	3,593	3,589	3,606	3,616	3,623	3,642	3,651	3,663	3,675	3,681	3,690	3,697	3,704	3,717
Depository institutions	2,027	2,042	2,043	2,043	2,043	2,040	2,044	2,044	2,047	2,049	2,051	2,051	2,050	2,048	2,051
Commercial banks	1,463	1,468	1,468	1,468	1,467	1,465	1,466	1,466	1,467	1,469	1,470	1,469	1,467	1,466	1,470
Savings institutions	260	258	258	258	258	258	258	258	257	258	258	258	257	257	256
Nondepository institutions	577	658	655	663	669	673	684	693	698	705	708	712	716	719	721
Security and commodity brokers	596	645	644	650	653	656	660	658	661	663	661	664	668	671	675
Holding and other investment offices	223	248	247	250	251	254	254	256	257	258	261	263	263	266	270
Insurance	2,264	2,344	2,343	2,349	2,355	2,362	2,367	2,375	2,379	2,383	2,386	2,392	2,395	2,397	2,401
Insurance carriers	1,539	1,598	1,597	1,602	1,607	1,611	1,614	1,619	1,624	1,627	1,628	1,632	1,631	1,633	1,637
Insurance agents, brokers, and service	725	746	746	747	748	751	753	756	755	756	758	760	764	764	764
Real estate	1,421	1,471	1,468	1,475	1,474	1,482	1,485	1,494	1,500	1,512	1,514	1,513	1,519	1,517	1,524
Services[1]	36,040	37,526	37,460	37,576	37,688	37,780	37,929	38,070	38,207	38,313	38,458	38,556	38,697	38,766	38,917
Agricultural services	678	706	698	704	709	712	716	726	739	747	751	747	755	750	757
Hotels and other lodging places	1,746	1,776	1,777	1,782	1,784	1,785	1,784	1,782	1,783	1,785	1,786	1,789	1,791	1,788	1,797
Personal services	1,186	1,195	1,196	1,197	1,197	1,195	1,194	1,198	1,202	1,205	1,201	1,200	1,204	1,190	1,195
Business services	7,988	8,584	8,573	8,601	8,649	8,654	8,729	8,779	8,829	8,869	8,922	8,963	9,010	9,038	9,081
Services to buildings	930	950	948	952	952	956	959	962	964	971	971	973	978	977	985
Personnel supply services	2,985	3,230	3,248	3,234	3,249	3,230	3,254	3,267	3,292	3,308	3,331	3,343	3,350	3,361	3,384
Help supply services	2,656	2,872	2,886	2,873	2,887	2,874	2,891	2,903	2,922	2,933	2,954	2,967	2,975	2,979	2,998
Computer and data processing services	1,409	1,599	1,593	1,613	1,626	1,639	1,658	1,675	1,691	1,708	1,724	1,734	1,749	1,764	1,779
Auto repair services and parking	1,120	1,144	1,142	1,146	1,150	1,153	1,155	1,160	1,163	1,168	1,175	1,176	1,178	1,182	1,180
Miscellaneous repair services	374	382	381	381	382	384	386	388	390	392	392	393	396	398	397
Motion pictures	550	573	564	573	575	577	577	575	577	573	582	580	587	595	606
Amusement and recreation services	1,552	1,601	1,587	1,599	1,608	1,622	1,626	1,641	1,647	1,653	1,656	1,660	1,668	1,677	1,697
Health services	9,703	9,846	9,842	9,847	9,859	9,873	9,883	9,892	9,899	9,905	9,919	9,932	9,951	9,952	9,960
Offices and clinics of medical doctors	1,739	1,803	1,798	1,803	1,811	1,818	1,825	1,831	1,833	1,840	1,844	1,850	1,856	1,860	1,867
Nursing and personal care facilities	1,756	1,762	1,765	1,762	1,760	1,761	1,759	1,757	1,756	1,756	1,755	1,754	1,753	1,754	1,752
Hospitals	3,860	3,926	3,925	3,931	3,937	3,943	3,948	3,950	3,952	3,954	3,959	3,963	3,966	3,966	3,968
Home health care services	710	672	674	665	661	658	654	651	651	645	651	653	656	652	652
Legal services	944	973	971	974	977	980	985	986	988	989	992	995	998	999	1,002
Educational services	2,104	2,177	2,171	2,177	2,176	2,189	2,206	2,214	2,223	2,218	2,237	2,243	2,254	2,265	2,274
Social services	2,518	2,644	2,638	2,650	2,660	2,672	2,682	2,695	2,708	2,721	2,734	2,744	2,755	2,759	2,774
Child day care services	576	605	604	607	610	610	612	615	618	621	625	627	628	630	635
Residential care	716	747	743	746	749	753	757	760	762	765	768	769	772	774	774
Museums and botanical and zoological gardens	90	93	92	92	93	93	93	94	94	94	94	95	94	93	94
Membership organizations	2,277	2,361	2,360	2,362	2,365	2,369	2,374	2,375	2,380	2,385	2,389	2,392	2,392	2,394	2,399
Engineering and management services	2,988	3,185	3,178	3,201	3,214	3,231	3,248	3,273	3,292	3,316	3,335	3,354	3,370	3,391	3,409
Engineering and architectural services	865	905	906	910	912	913	915	919	922	926	930	933	939	939	942
Management and public relations	939	1,034	1,025	1,037	1,046	1,058	1,068	1,081	1,090	1,103	1,111	1,123	1,133	1,142	1,153
Government	19,557	19,819	19,776	19,799	19,869	19,891	19,913	19,948	19,973	19,992	20,054	20,087	20,099	20,078	20,096
Federal	2,699	2,686	2,677	2,675	2,688	2,689	2,711	2,723	2,701	2,702	2,713	2,710	2,688	2,667	2,664
Federal, except Postal Service	1,842	1,819	1,813	1,809	1,818	1,815	1,833	1,843	1,819	1,822	1,834	1,831	1,809	1,789	1,786
State	4,582	4,612	4,598	4,612	4,633	4,647	4,633	4,637	4,652	4,644	4,670	4,680	4,688	4,679	4,680
Education	1,904	1,916	1,911	1,915	1,931	1,939	1,923	1,923	1,932	1,920	1,941	1,948	1,955	1,944	1,947
Other State government	2,678	2,695	2,687	2,697	2,702	2,708	2,710	2,714	2,720	2,724	2,729	2,732	2,733	2,735	2,733
Local	12,276	12,521	12,501	12,512	12,548	12,555	12,569	12,588	12,620	12,646	12,671	12,697	12,723	12,732	12,752
Education	6,918	7,082	7,060	7,078	7,109	7,103	7,108	7,132	7,148	7,165	7,181	7,200	7,206	7,225	7,236
Other local government	5,357	5,440	5,441	5,434	5,439	5,452	5,461	5,456	5,472	5,481	5,490	5,497	5,517	5,507	5,516

[1] Includes other industries not shown separately.

[P] = preliminary.

13. Average weekly hours of production or nonsupervisory workers on private nonfarm payrolls, by industry, monthly data seasonally adjusted

Industry	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May[p]	June[p]
PRIVATE SECTOR	34.6	34.6	34.6	34.6	34.6	34.5	34.6	34.6	34.6	34.6	34.6	34.5	34.4	34.4	34.5
GOODS-PRODUCING	41.3	41.0	41.1	41.2	41.1	40.9	41.1	41.0	41.1	41.1	41.0	40.8	40.9	41.0	41.1
MINING	45.4	43.9	43.7	44.3	43.7	43.3	43.7	43.3	43.3	42.9	43.0	42.9	43.8	44.1	43.7
MANUFACTURING	42.0	41.7	41.8	41.7	41.7	41.6	41.7	41.7	41.7	41.6	41.6	41.5	41.6	41.7	41.7
Overtime hours	4.8	4.6	4.6	4.6	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.3	4.6	4.7
Durable goods	42.8	42.3	42.3	42.2	42.3	42.2	42.3	42.3	42.2	42.2	42.2	42.0	42.1	42.2	42.2
Overtime hours	5.1	4.8	4.8	4.8	4.7	4.7	4.7	4.6	4.6	4.6	4.6	4.6	4.3	4.7	4.8
Lumber and wood products	41.0	41.1	41.1	41.2	41.2	40.7	41.1	41.2	41.5	41.7	41.1	41.2	41.2	41.2	41.1
Furniture and fixtures	40.2	40.6	40.9	40.7	40.6	40.2	40.5	40.3	40.2	40.4	40.3	40.3	40.4	40.3	40.2
Stone, clay, and glass products	43.2	43.5	43.4	43.6	43.6	43.4	43.6	43.6	43.8	43.8	43.4	42.9	43.1	43.4	43.5
Primary metal industries	44.9	44.2	44.4	44.0	44.1	43.9	43.7	43.8	43.7	43.7	43.8	43.9	44.5	44.8	45.4
Blast furnaces and basic steel products	44.9	44.6	45.0	44.4	44.4	44.2	43.7	43.7	43.3	43.8	43.8	43.9	44.5	44.8	45.4
Fabricated metal products	42.6	42.3	42.4	42.4	42.3	42.2	42.3	42.2	42.2	42.1	42.1	42.1	41.8	42.1	42.0
Industrial machinery and equipment	43.6	42.8	43.1	42.9	42.9	42.6	42.6	42.4	42.1	42.1	42.1	41.9	41.9	42.1	42.0
Electronic and other electrical equipment	42.0	41.4	41.4	41.4	41.5	41.4	41.5	41.4	41.1	41.2	41.2	41.0	41.1	41.6	40.9
Transportation equipment	44.5	43.4	42.9	43.0	43.0	43.8	43.9	44.1	44.1	43.5	44.0	43.7	44.0	43.6	44.4
Motor vehicles and equipment	45.0	43.5	42.7	42.5	43.0	44.3	44.1	44.6	44.9	44.3	45.0	44.7	45.1	44.5	45.7
Instruments and related products	42.0	41.3	41.4	41.4	41.3	41.1	41.2	41.1	41.1	41.2	41.3	41.2	41.6	41.6	41.7
Miscellaneous manufacturing	40.4	39.9	40.1	40.0	40.0	39.5	39.7	39.4	39.6	39.6	39.7	39.8	39.6	40.2	39.9
Nondurable goods	40.9	40.9	40.9	41.0	40.9	40.8	40.9	40.8	40.9	40.8	40.8	40.8	40.9	41.0	40.9
Overtime hours	4.4	4.3	4.3	4.4	4.3	4.3	4.3	4.3	4.3	4.4	4.3	4.4	4.2	4.4	4.5
Food and kindred products	41.3	41.7	41.7	41.8	41.7	41.7	41.6	41.7	42.0	41.8	41.7	41.7	41.9	41.8	42.0
Textile mill products	41.4	41.0	41.2	41.0	41.0	40.4	41.1	40.8	40.8	40.8	40.6	40.4	41.0	40.9	40.4
Apparel and other textile products	37.3	37.3	37.3	37.4	37.4	37.2	37.3	37.3	37.3	37.0	37.5	37.4	37.5	37.8	37.6
Paper and allied products	43.7	43.4	43.5	43.6	43.3	43.6	43.5	43.5	43.4	43.5	43.5	43.7	43.6	43.5	43.6
Printing and publishing	38.5	38.3	38.3	38.4	38.5	38.2	38.2	38.1	38.1	38.2	38.1	37.9	38.1	38.2	38.1
Chemicals and allied products	43.2	43.2	43.2	43.1	43.2	43.2	43.2	42.9	42.7	42.9	42.8	42.8	43.0	43.0	42.8
Rubber and miscellaneous plastics products	41.8	41.7	41.9	41.9	41.7	41.7	41.8	41.6	41.7	41.4	41.7	41.8	41.5	41.9	41.7
Leather and leather products	38.4	37.6	37.6	37.3	37.9	37.4	37.4	37.4	37.5	37.3	37.7	37.7	38.1	38.2	37.7
SERVICE-PRODUCING	32.9	32.9	32.9	33.0	32.9	32.8	32.9	32.9	32.9	32.9	33.0	32.8	32.8	32.8	32.8
TRANSPORTATION AND PUBLIC UTILITIES	39.7	39.5	39.5	39.5	39.4	39.3	39.3	39.2	39.1	39.3	39.2	39.1	39.0	38.8	38.8
WHOLESALE TRADE	38.4	38.4	38.3	38.4	38.4	38.3	38.3	38.4	38.4	38.4	38.5	38.4	38.4	38.3	38.5
RETAIL TRADE	28.9	29.0	29.0	29.1	29.0	29.0	29.1	29.0	29.0	29.0	29.2	29.0	29.0	29.1	29.1

[p] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

14. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry, seasonally adjusted

Industry	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May[p]	June[p]
PRIVATE SECTOR (in current dollars)	$ 12.28	$ 12.78	$12.76	$12.80	$12.85	$12.88	$12.91	$12.94	$12.98	$13.04	$13.06	$13.11	$13.14	$13.08	$13.23
Goods-producing	13.92	14.34	14.31	14.33	14.39	14.41	14.44	14.47	14.51	14.53	14.56	14.61	14.67	14.75	14.86
Mining	16.15	16.90	16.71	16.87	17.00	17.06	17.15	17.27	17.18	17.07	16.97	17.00	16.87	17.04	17.04
Construction	16.04	16.59	16.54	16.63	16.67	16.60	16.72	16.76	16.80	16.80	16.83	16.92	16.97	17.08	17.19
Manufacturing	13.17	13.49	13.48	13.46	13.53	13.58	13.57	13.58	13.60	13.64	13.67	13.71	13.79	13.85	13.94
Excluding overtime	12.45	12.79	12.77	12.75	12.82	12.86	12.87	12.88	12.90	12.93	12.97	13.00	13.09	13.13	13.19
Service-producing	11.73	12.27	12.26	12.30	12.35	12.38	12.41	12.45	12.49	12.56	12.58	12.63	12.65	12.68	12.72
Transportation and public utilities	14.92	15.31	15.27	15.31	15.33	15.37	15.38	15.41	15.47	15.49	15.51	15.53	15.60	15.65	15.65
Wholesale trade	13.45	14.06	14.05	14.09	14.17	14.18	14.23	14.27	14.30	14.36	14.36	14.42	14.44	14.47	14.51
Retail trade	8.33	8.73	8.71	8.76	8.80	8.84	8.83	8.85	8.89	8.93	8.95	8.98	9.03	9.04	9.07
Finance, insurance, and real estate	13.34	14.06	14.05	14.08	14.14	14.16	14.23	14.32	14.40	14.46	14.49	14.51	14.58	14.60	14.64
Services	12.28	12.85	12.85	12.89	12.94	12.98	13.02	13.05	13.08	13.17	13.22	13.27	13.28	13.32	13.36
PRIVATE SECTOR (in constant (1982) dollars)	7.55	7.75	7.75	7.76	7.78	7.80	7.80	7.80	7.81	7.83	7.84	7.86	7.83	7.85	–

– Data not available.

[p] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

15. Average hourly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May[p]	June[p]
PRIVATE SECTOR	$12.28	$12.78	$12.68	$12.68	$12.76	$12.90	$12.93	$13.00	$13.00	$13.11	$13.10	$13.12	$13.16	$13.19	$13.14
MINING	16.15	16.90	16.68	16.76	16.88	17.11	17.07	17.29	17.29	17.23	17.08	17.01	16.93	16.99	17.01
CONSTRUCTION	16.04	16.59	16.47	16.66	16.77	16.79	16.89	16.82	16.87	16.74	16.66	16.79	16.85	17.02	17.11
MANUFACTURING	13.17	13.49	13.44	13.38	13.45	13.60	13.55	13.60	13.69	13.66	13.66	13.73	13.80	13.85	13.90
Durable goods	13.73	13.98	13.93	13.77	13.92	14.07	14.02	14.07	14.16	14.11	14.12	14.20	14.27	14.33	14.37
Lumber and wood products	10.76	11.10	11.09	11.17	11.18	11.17	11.22	11.24	11.33	11.28	11.26	11.31	11.37	11.41	11.45
Furniture and fixtures	10.55	10.90	10.82	10.91	10.96	10.99	10.99	10.99	11.10	11.10	11.06	11.10	11.14	11.14	11.18
Stone, clay, and glass products	13.18	13.60	13.58	13.59	13.63	13.82	13.68	13.65	13.70	13.66	13.64	13.70	13.75	13.87	13.91
Primary metal industries	15.22	15.49	15.54	15.56	15.45	15.61	15.32	15.35	15.36	15.39	15.41	15.53	15.62	15.76	15.85
Blast furnaces and basic steel products	18.03	18.43	18.54	18.50	18.46	18.76	18.22	18.32	18.18	18.41	18.50	18.56	18.59	18.84	18.97
Fabricated metal products	12.78	13.06	13.01	12.88	13.04	13.16	13.17	13.21	13.34	13.29	13.29	13.33	13.36	13.45	13.47
Industrial machinery and equipment	14.07	14.47	14.42	14.43	14.46	14.55	14.57	14.64	14.73	14.69	14.72	14.81	14.85	14.93	14.95
Electronic and other electrical equipment	12.70	13.09	13.06	13.13	13.10	13.23	13.13	13.17	13.26	13.26	13.25	13.27	13.31	13.38	13.35
Transportation equipment	17.55	17.53	17.41	16.86	17.29	17.49	17.46	17.52	17.56	17.47	17.50	17.66	17.88	17.96	18.09
Motor vehicles and equipment	18.04	17.86	17.75	16.79	17.52	17.77	17.63	17.68	17.73	17.65	17.71	17.98	18.31	18.37	18.52
Instruments and related products	13.52	13.81	13.75	13.78	13.79	13.88	13.86	13.91	14.00	13.91	13.94	13.97	14.07	14.07	14.02
Miscellaneous manufacturing	10.60	10.89	10.83	10.85	10.85	10.98	11.02	11.03	11.12	11.16	11.17	11.19	11.25	11.25	11.27
Nondurable goods	12.34	12.76	12.70	12.81	12.75	12.93	12.84	12.90	12.99	12.99	12.97	13.03	13.09	13.11	13.18
Food and kindred products	11.48	11.80	11.76	11.80	11.76	11.95	11.82	11.95	12.02	11.94	11.91	11.93	12.07	12.11	12.19
Tobacco products	19.24	18.55	20.78	20.59	18.96	17.92	16.95	17.31	17.05	17.14	17.80	19.33	19.99	20.68	20.67
Textile mill products	10.03	10.39	10.36	10.36	10.37	10.48	10.45	10.51	10.56	10.63	10.60	10.62	10.68	10.68	10.78
Apparel and other textile products	8.25	8.52	8.50	8.48	8.54	8.63	8.65	8.64	8.71	8.68	8.65	8.78	8.83	8.80	8.90
Paper and allied products	15.05	15.51	15.46	15.64	15.54	15.84	15.60	15.64	15.78	15.73	15.70	15.78	15.83	15.93	16.01
Printing and publishing	13.06	13.45	13.34	13.44	13.47	13.65	13.61	16.57	13.68	13.66	13.67	13.73	13.73	13.73	13.74
Chemicals and allied products	16.57	17.12	17.04	17.19	17.14	17.30	17.21	17.27	17.31	17.24	17.20	17.18	17.27	17.39	17.40
Petroleum and coal products	20.20	20.92	20.74	20.83	20.80	20.83	21.06	20.96	21.22	21.22	21.43	21.59	21.49	21.04	21.11
Rubber and miscellaneous plastics products	11.57	11.87	11.81	11.91	11.84	11.98	11.88	11.97	12.08	12.19	12.16	12.20	12.23	12.26	12.32
Leather and leather products	8.97	9.32	9.33	9.14	9.28	9.35	9.45	9.44	9.43	9.64	9.56	9.55	9.59	9.60	9.60
TRANSPORTATION AND PUBLIC UTILITIES	14.92	15.31	15.19	15.27	15.30	15.41	15.39	15.48	15.50	15.57	15.56	15.51	15.57	15.55	15.56
WHOLESALE TRADE	13.45	14.06	13.94	14.04	14.18	14.16	14.19	14.34	14.32	14.42	14.38	14.34	14.48	14.52	14.39
RETAIL TRADE	8.33	8.73	8.68	8.69	8.72	8.88	8.84	8.86	8.88	9.00	8.98	9.00	9.03	9.03	9.03
FINANCE, INSURANCE, AND REAL ESTATE	13.34	14.06	13.94	13.94	14.12	14.10	14.20	14.43	14.40	14.48	14.55	14.53	14.61	14.72	14.52
SERVICES	12.28	12.85	12.71	12.68	12.75	12.97	13.01	13.15	13.18	13.30	13.32	13.33	13.32	13.33	13.21

[p] = preliminary.

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

16. Average weekly earnings of production or nonsupervisory workers on private nonfarm payrolls, by industry

Industry	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May[p]	June[p]
PRIVATE SECTOR															
Current dollars	$424.89	$442.19	$440.00	$441.26	$449.15	$442.47	$447.38	$451.10	$451.10	$445.74	$449.33	$448.70	$451.39	$456.37	$454.64
Seasonally adjusted	–	–	441.50	442.88	444.61	444.36	446.69	447.72	449.11	451.18	451.88	452.30	452.02	453.39	456.44
Constant (1982) dollars	261.31	268.32	266.99	267.59	272.05	267.68	269.99	272.07	272.07	268.19	270.19	269.33	268.84	271.65	–
MINING	733.21	741.91	733.92	735.76	742.72	734.02	751.08	757.30	755.57	728.83	729.32	717.82	733.07	750.96	746.74
CONSTRUCTION	625.56	643.69	645.62	669.73	674.15	629.63	675.60	649.25	659.62	634.45	633.08	632.98	650.41	668.89	680.98
MANUFACTURING															
Current dollars	553.14	562.53	561.79	549.92	560.87	564.40	567.75	573.92	583.19	564.16	564.16	568.42	574.08	577.75	579.63
Constant (1982) dollars	340.18	341.34	340.89	333.49	339.72	341.44	342.64	346.15	351.74	339.45	339.24	341.19	341.92	343.78	–
Durable goods	587.64	591.35	590.63	571.46	587.42	588.13	595.85	602.20	613.13	591.21	591.63	596.40	602.19	606.16	607.85
Lumber and wood products	441.16	456.21	461.34	460.20	465.09	452.39	465.63	466.46	472.46	459.10	453.78	461.45	468.44	472.37	476.32
Furniture and fixtures	424.11	442.54	441.46	439.67	449.36	437.40	449.49	449.49	460.65	445.11	440.19	444.00	447.83	442.26	448.32
Stone, clay, and glass products	569.38	591.60	596.16	595.24	602.45	606.70	603.29	597.87	600.06	580.55	576.97	578.14	594.00	607.51	612.04
Primary metal industries	683.38	684.66	689.98	670.64	676.71	683.72	667.95	678.47	685.06	674.08	673.42	681.77	688.84	699.74	703.74
Blast furnaces and basic steel products	809.55	821.98	834.30	812.15	815.93	832.94	787.10	800.58	794.47	810.04	808.45	814.78	829.11	845.92	861.24
Fabricated metal products	544.43	552.44	554.23	535.81	550.29	547.46	561.04	565.39	578.96	555.52	555.52	557.19	562.46	566.25	568.43
Industrial machinery and equipment	613.45	619.32	622.94	610.39	616.00	608.19	617.77	625.13	636.34	619.92	619.71	623.50	626.67	630.05	629.40
Electronic and other electrical equipment	533.40	541.93	540.68	533.08	543.65	542.43	544.90	554.46	560.90	543.66	544.58	541.42	547.04	552.59	546.02
Transportation equipment	780.98	760.80	746.89	691.26	740.01	757.32	771.73	781.39	802.49	756.45	768.25	775.27	790.30	790.24	801.39
Motor vehicles and equipment	811.80	776.91	757.93	664.88	744.60	778.33	784.54	799.14	829.76	776.60	796.95	810.90	834.94	832.16	846.36
Instruments and related products	567.84	570.35	569.25	560.85	568.15	563.53	569.65	577.27	588.00	573.09	578.51	578.36	583.91	582.50	584.63
Miscellaneous manufacturing	428.24	434.51	433.20	425.32	434.00	431.51	443.00	441.20	447.02	435.24	442.33	447.60	448.88	451.13	448.55
Nondurable goods	504.71	521.88	519.43	520.09	522.75	530.13	527.72	532.77	540.38	527.39	525.29	529.02	532.76	534.89	539.06
Food and kindred products	474.12	492.06	488.04	490.88	493.92	507.88	496.44	506.68	514.46	495.51	489.50	490.32	497.28	503.78	509.54
Tobacco products	748.44	710.47	829.12	809.19	745.13	670.21	662.75	673.36	639.38	639.32	662.16	736.47	767.62	823.06	824.73
Textile mill products	415.24	425.99	429.94	418.54	427.24	424.44	429.50	431.96	437.18	432.64	426.12	427.99	436.81	435.74	439.82
Apparel and other textile products	307.73	317.80	321.30	312.91	321.10	316.72	325.24	325.73	330.11	318.56	322.65	328.37	332.01	332.64	338.20
Paper and allied products	657.69	673.13	672.51	674.08	669.77	698.54	680.16	686.60	699.05	684.26	675.10	684.85	690.19	689.77	698.04
Printing and publishing	502.81	515.14	506.92	512.06	519.94	526.89	522.62	525.16	530.78	514.98	515.36	520.37	523.11	520.37	518.00
Chemicals and allied products	715.58	739.58	734.42	734.01	737.02	750.82	743.47	746.06	752.99	737.87	734.44	735.30	737.43	744.29	744.72
Petroleum and coal products	870.62	912.11	895.97	933.18	915.20	899.86	926.64	920.14	948.53	931.56	927.92	943.48	917.62	894.20	899.29
Rubber and miscellaneous plastics products	483.63	494.98	496.02	489.50	491.36	495.97	496.58	503.94	515.82	503.45	503.42	509.96	511.21	513.69	514.98
Leather and leather products	344.45	350.43	355.47	337.27	356.35	348.76	355.32	358.72	359.28	353.79	355.63	359.08	363.46	365.76	366.72
TRANSPORTATION AND PUBLIC UTILITIES	592.32	604.75	601.52	606.22	610.47	605.61	604.83	614.56	606.05	602.56	606.84	601.79	601.00	603.34	605.28
WHOLESALE TRADE	516.48	539.90	535.30	537.73	548.77	539.50	543.48	554.96	549.89	547.96	550.75	547.79	554.58	560.47	554.02
RETAIL TRADE	240.74	253.17	254.32	258.96	260.73	258.41	255.48	256.05	259.30	252.90	256.83	257.40	259.16	262.77	265.48
FINANCE, INSURANCE, AND REAL ESTATE	481.57	511.78	501.84	503.23	521.03	506.19	512.62	532.47	521.28	521.28	528.17	523.08	524.50	535.81	519.82
SERVICES	400.33	418.91	415.62	417.17	423.30	418.93	424.13	431.32	429.67	429.59	432.90	431.89	431.57	435.89	430.65

[p] = preliminary.
NOTE: See "Notes on the data" for a description of the most recent benchmark revision. Dash indicates data not available.

17. Diffusion indexes of employment change, seasonally adjusted

[In percent]

Timespan and year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov	Dec.
	Private nonfarm payrolls, 356 industries											
Over 1-month span:												
1996	49.6	64.9	59.4	55.1	61.9	60.8	57.0	62.5	57.3	63.5	59.7	61.2
1997	56.2	61.0	61.9	62.8	58.8	56.3	60.7	61.0	59.4	65.4	63.6	62.1
1998	63.8	57.9	58.8	60.5	55.9	57.9	58.0	55.8	54.6	52.9	59.1	58.6
1999	54.4	58.3	52.1	58.8	50.6	55.8	–	–	–	–	–	–
Over 3-month span:												
1996	62.6	62.5	63.3	63.1	63.1	64.3	64.3	62.2	64.6	64.2	66.2	63.2
1997	63.8	63.6	67.7	67.3	62.6	61.7	61.4	66.2	67.3	69.9	70.8	71.2
1998	66.7	66.2	64.5	63.9	61.4	58.7	60.0	58.4	57.6	57.6	59.0	60.4
1999	60.7	55.9	59.6	54.5	55.2	–	–	–	–	–	–	–
Over 6-month span:												
1996	62.6	65.2	64.5	65.2	64.7	64.6	67.0	65.4	65.9	66.7	66.9	66.7
1997	67.4	68.3	65.6	67.0	65.6	64.9	66.3	68.4	69.7	71.3	71.3	71.9
1998	70.6	66.9	65.9	62.4	62.6	61.1	58.0	59.8	60.0	60.8	60.8	58.0
1999	61.1	59.0	55.8	–	–	–	–	–	–	–	–	–
Over 12-month span:												
1996	64.5	66.7	64.5	65.6	68.5	67.3	67.7	66.4	68.0	69.9	68.7	66.9
1997	69.0	67.3	68.3	69.7	69.5	70.1	70.1	70.4	70.5	69.7	69.8	71.3
1998	70.4	68.3	67.1	64.0	62.1	61.7	61.8	63.8	59.8	59.0	58.8	58.6
	Manufacturing payrolls, 139 industries											
Over 1-month span:												
1996	42.4	55.4	46.8	41.0	55.8	51.4	47.1	56.5	48.9	55.0	50.7	54.0
1997	50.0	52.9	53.6	56.1	52.2	53.2	51.1	55.4	53.6	62.2	61.2	55.4
1998	58.6	51.8	50.4	50.4	40.6	46.8	40.3	45.3	42.1	36.3	39.9	45.0
1999	40.3	42.4	39.6	44.6	37.1	45.0	–	–	–	–	–	–
Over 3-month span:												
1996	46.8	46.0	43.5	46.0	48.2	51.1	51.8	49.6	53.2	52.5	55.0	50.7
1997	51.8	51.4	57.6	56.8	54.3	51.8	53.6	55.4	59.7	68.3	65.8	64.4
1998	59.4	57.9	51.8	44.2	41.7	34.9	37.4	37.1	38.1	34.2	35.6	35.3
1999	37.4	31.7	37.1	30.2	35.3	–	–	–	–	–	–	–
Over 6-month span:												
1996	41.4	46.0	45.7	47.1	46.0	48.6	52.9	50.4	51.8	51.4	52.5	51.8
1997	54.7	54.0	51.4	54.3	52.5	52.2	55.4	61.2	61.5	64.7	66.2	65.1
1998	59.7	49.3	48.2	36.7	36.7	36.7	28.4	31.3	33.5	35.3	32.7	28.1
1999	33.1	29.1	28.8	–	–	–	–	–	–	–	–	–
Over 12-month span:												
1996	43.5	47.5	45.3	45.3	50.4	49.6	50.4	48.6	51.1	55.0	54.3	50.7
1997	54.7	52.5	54.0	54.0	55.4	56.8	57.2	57.9	58.3	56.5	55.4	57.2
1998	54.0	49.3	46.0	40.6	35.6	33.8	30.9	32.0	26.6	26.6	26.3	26.6

– Data not available.

NOTE: Figures are the percent of industries with employment increasing plus one-half of the industries with unchanged employment, where 50 percent indicates an equal balance between industries with increasing and decreasing employment. Data for the 2 most recent months shown in each span are preliminary. See the "Definitions" in this section. See "Notes on the data" for a description of the most recent benchmark revision.

18. Annual data: Employment status of the population

[Numbers in thousands]

Employment status	1990	1991	1992	1993	1994	1995	1996	1997	1998
Civilian noninstitutional population	189,164	190,925	192,805	194,838	196,814	198,584	200,591	203,133	205,220
Civilian labor force	125,840	126,346	128,105	129,200	131,056	132,304	133,943	136,297	137,673
Labor force participation rate	66.5	66.2	66.4	66.3	66.6	66.6	66.8	67.1	67.1
Employed	118,793	117,718	118,492	120,259	123,060	124,900	126,708	129,558	131,463
Employment-population ratio	62.8	61.7	61.5	61.7	62.5	62.9	63.2	63.8	64.1
Agriculture	3,223	3,269	3,247	3,115	3,409	3,440	3,443	3,399	3,378
Nonagricultural industries	115,570	114,499	115,245	117,144	119,651	121,460	123,264	126,159	128,085
Unemployed	7,047	8,628	9,613	8,940	7,996	7,404	7,236	6,739	6,210
Unemployment rate	5.6	6.8	7.5	6.9	6.1	5.6	5.4	4.9	4.5
Not in the labor force	63,324	64,578	64,700	65,638	65,758	66,280	66,647	66,837	67,547

19. Annual data: Employment levels by industry

[In thousands]

Industry	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total employment	109,403	108,249	108,601	110,713	114,163	117,191	119,608	122,690	125,826
Private sector	91,098	89,847	89,956	91,872	95,036	97,885	100,189	103,133	106,007
Goods-producing	24,905	23,745	23,231	23,352	23,908	24,265	24,493	24,962	25,347
Mining	709	689	635	610	601	581	580	596	590
Construction	5,120	4,650	4,492	4,668	4,986	5,160	5,418	5,691	5,985
Manufacturing	19,076	18,406	18,104	18,075	18,321	18,524	18,495	18,675	18,772
Service-producing	84,497	84,504	85,370	87,361	90,256	92,925	95,115	97,727	100,480
Transportation and public utilities	5,777	5,755	5,718	5,811	5,984	6,132	6,253	6,408	6,600
Wholesale trade	6,173	6,081	5,997	5,981	6,162	6,378	6,482	6,648	6,831
Retail trade	19,601	19,284	19,356	19,773	20,507	21,187	21,597	21,966	22,296
Finance, insurance, and real estate	6,709	6,646	6,602	6,757	6,896	6,806	6,911	7,109	7,407
Services	27,934	28,336	29,052	30,197	31,579	33,117	34,454	36,040	37,526
Government	18,304	18,402	18,645	18,841	19,128	19,305	19,419	19,557	19,819
Federal	3,085	2,966	2,969	2,915	2,870	2,822	2,757	2,699	2,686
State	4,305	4,355	4,408	4,488	4,576	4,635	4,606	4,582	4,612
Local	10,914	11,081	11,267	11,438	11,682	11,849	12,056	12,276	12,521

NOTE: See "Notes on the data" for a description of the most recent benchmark revision.

20. Annual data: Average hours and earnings of production or nonsupervisory workers on nonfarm payrolls, by industry

Industry	1990	1991	1992	1993	1994	1995	1996	1997	1998
Private sector:									
Average weekly hours	34.5	34.3	34.4	34.5	34.7	34.5	34.4	34.6	34.6
Average hourly earnings (in dollars)	10.01	10.32	10.57	10.83	11.12	11.43	11.82	12.28	12.78
Average weekly earnings (in dollars)	345.35	353.98	363.61	373.64	385.86	394.34	406.61	424.89	442.19
Mining:									
Average weekly hours	44.1	44.4	43.9	44.3	44.8	44.7	45.3	45.4	43.9
Average hourly earnings (in dollars)	13.68	14.19	14.54	14.60	14.88	15.30	15.62	16.15	16.90
Average weekly earnings (in dollars)	603.29	630.04	638.31	646.78	666.62	683.91	707.59	733.21	741.91
Construction:									
Average weekly hours	38.2	38.1	38.0	38.5	38.9	38.9	39.0	39.0	38.8
Average hourly earnings (in dollars)	13.77	14.00	14.15	14.38	14.73	15.09	15.47	16.04	16.59
Average weekly earnings (in dollars)	526.01	533.40	537.70	553.63	573.00	587.00	603.33	625.56	643.69
Manufacturing:									
Average weekly hours	40.8	40.7	41.0	41.4	42.0	41.6	41.6	42.0	41.7
Average hourly earnings (in dollars)	10.83	11.18	11.46	11.74	12.07	12.37	12.77	13.17	13.49
Average weekly earnings (in dollars)	441.86	455.03	469.86	486.04	506.94	514.59	531.23	553.14	562.53
Transportation and public utilities:									
Average weekly hours	38.4	38.1	38.3	39.3	39.7	39.4	39.6	39.7	39.5
Average hourly earnings (in dollars)	12.92	13.20	13.43	13.55	13.78	14.13	14.45	14.92	15.31
Average weekly earnings (in dollars)	496.13	502.92	514.37	532.52	547.07	556.72	572.22	592.32	604.75
Wholesale trade:									
Average weekly hours	38.1	38.1	38.2	38.2	38.4	38.3	38.3	38.4	38.4
Average hourly earnings (in dollars)	10.79	11.15	11.39	11.74	12.06	12.43	12.87	13.45	14.06
Average weekly earnings (in dollars)	411.10	424.82	435.10	448.47	463.10	476.07	492.92	516.48	539.90
Retail trade:									
Average weekly hours	28.8	28.6	28.8	28.8	28.9	28.8	28.8	28.9	29.0
Average hourly earnings (in dollars)	6.75	6.94	7.12	7.29	7.49	7.69	7.99	8.33	8.73
Average weekly earnings (in dollars)	194.40	198.48	205.06	209.95	216.46	221.47	230.11	240.74	253.17
Finance, insurance, and real estate:									
Average weekly hours	35.8	35.7	35.8	35.8	35.8	35.9	35.9	36.1	36.4
Average hourly earnings (in dollars)	9.97	10.39	10.82	11.35	11.83	12.32	12.80	13.34	14.06
Average weekly earnings (in dollars)	356.93	370.92	387.36	406.33	423.51	442.29	459.52	481.57	511.78
Services:									
Average weekly hours	32.5	32.4	32.5	32.5	32.5	32.4	32.4	32.6	32.6
Average hourly earnings (in dollars)	9.83	10.23	10.54	10.78	11.04	11.39	11.79	12.28	12.85
Average weekly earnings (in dollars)	319.48	331.45	342.55	350.35	358.80	369.04	382.00	400.33	418.91

21. Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1997				1998				1999	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended Mar. 1999	12 months ended Mar. 1999
Civilian workers[2]	132.0	132.8	134.1	135.2	136.3	137.4	139.0	139.8	140.4	0.4	3.0
Workers, by occupational group:											
White-collar workers	133.1	133.9	135.2	136.5	137.7	138.7	140.6	141.4	141.9	.4	3.1
Professional specialty and technical	133.7	134.6	135.8	136.7	137.5	138.3	140.0	141.0	141.3	.2	2.8
Executive, adminitrative, and managerial	133.2	134.0	135.3	137.3	139.1	139.7	141.7	141.8	143.5	1.2	3.2
Administrative support, including clerical	133.6	134.6	135.8	136.9	138.0	139.3	140.4	141.3	142.5	.8	3.3
Blue-collar workers	129.8	130.9	131.8	132.4	133.2	134.3	135.3	136.1	137.1	.7	2.9
Service occupations	132.0	132.7	134.6	135.6	136.9	137.9	139.4	140.0	141.3	.9	3.2
Workers, by industry division:											
Goods-producing	131.5	132.7	133.6	134.1	135.1	136.3	137.2	137.9	139.0	.8	2.9
Manufacturing	132.6	133.8	134.6	135.3	136.4	137.2	138.2	138.9	139.9	.7	2.6
Service-producing	132.1	132.9	134.2	135.5	136.8	137.7	139.6	140.4	140.9	.4	3.0
Services	134.1	134.9	136.5	137.6	138.3	139.0	140.8	141.7	142.3	.4	2.9
Health services	135.2	135.7	136.7	137.9	138.0	138.5	139.1	139.1	140.5	1.0	1.8
Hospitals	134.2	134.6	135.6	136.7	137.1	138.2	139.4	140.2	141.3	.8	3.1
Educational services	134.0	134.2	136.5	137.0	137.5	137.7	140.2	141.0	141.3	.2	2.8
Public administration[3]	133.0	133.0	134.1	135.1	136.4	137.4	138.9	139.9	140.8	.6	3.2
Nonmanufacturing	131.7	132.5	133.8	135.1	136.2	137.3	139.0	139.9	140.5	.4	3.2
Private industry workers	131.7	132.8	133.9	135.1	136.3	137.5	139.0	139.8	140.4	.4	3.0
Excluding sales occupations	131.9	133.0	134.1	135.2	136.4	137.5	138.8	139.4	140.5	.8	3.0
Workers, by occupational group:											
White-collar workers	133.1	134.1	135.2	136.7	138.1	139.4	141.1	142.0	142.4	.3	3.1
Excluding sales occupations	133.7	134.8	135.9	137.4	138.8	139.9	141.3	141.9	143.0	.8	3.0
Professional specialty and technical occupations	134.6	135.9	136.7	137.8	138.8	140.1	141.6	142.6	142.9	.2	3.0
Executive, adminitrative, and managerial occupations	133.0	133.9	135.2	137.4	139.4	140.0	141.9	141.8	143.7	1.3	3.1
Sales occupations	130.1	130.7	132.2	133.5	135.3	137.3	140.4	142.6	139.6	–2.1	3.2
Administrative support occupations, including clerical	133.7	134.7	135.9	137.0	138.2	139.6	140.6	141.4	142.6	.8	3.2
Blue-collar workers	129.6	130.8	131.7	132.3	133.1	134.3	135.2	135.9	136.9	.7	2.9
Precision production, craft, and repair occupations	129.6	130.9	131.7	131.9	132.9	134.4	135.4	136.1	137.2	.8	3.2
Machine operators, assemblers, and inspectors	130.0	131.2	132.2	133.0	133.6	134.7	135.7	136.8	137.3	.4	2.8
Transportation and material moving occupations	126.1	126.8	128.0	128.9	129.3	129.9	130.7	130.7	131.6	.7	1.8
Handlers, equipment cleaners, helpers, and laborers	132.8	133.4	134.2	135.8	137.0	137.6	138.5	139.2	141.0	1.3	2.9
Service occupations	129.8	130.9	133.1	134.1	135.3	136.0	137.3	138.0	139.5	1.1	3.1
Production and nonsupervisory occupations[4]	131.1	132.1	133.2	134.2	135.3	136.6	138.0	139.0	139.3	.2	3.0
Workers, by industry division:											
Goods-producing	131.4	132.7	133.6	134.1	135.1	136.2	137.1	137.8	138.9	.8	2.8
Excluding sales occupations	131.1	132.3	133.1	133.6	134.5	135.6	136.5	137.2	138.3	.8	2.8
White-collar occupations	133.5	134.8	135.6	136.2	137.7	138.8	139.7	140.2	141.7	1.1	2.9
Excluding sales occupations	132.6	133.8	134.5	135.0	136.3	137.4	138.3	138.8	140.4	1.2	3.0
Blue-collar occupations	130.2	131.4	132.4	132.8	133.5	134.6	135.5	136.3	137.1	.6	2.7
Construction	127.2	128.7	129.7	129.7	130.6	132.7	133.4	134.3	135.6	1.0	3.8
Manufacturing	132.6	133.8	134.6	135.3	136.4	137.2	138.2	138.9	139.9	.7	2.6
White-collar occupations	133.9	135.2	135.8	136.7	138.2	139.1	140.1	140.5	141.8	.9	2.6
Excluding sales occupations	132.8	133.8	134.5	135.3	136.5	137.3	138.3	138.7	140.1	1.0	2.6
Blue-collar occupations	131.7	132.8	133.7	134.3	135.0	135.9	136.8	137.7	138.5	.6	2.6
Durables	133.0	134.1	135.0	135.7	136.5	137.4	138.5	139.2	139.9	.5	2.5
Nondurables	131.7	133.0	133.7	134.5	135.9	136.7	137.6	138.2	139.6	1.0	2.7
Service-producing	131.6	132.5	133.8	135.3	136.7	137.8	139.6	140.5	140.9	.3	3.1
Excluding sales occupations	132.2	133.3	134.5	136.1	137.4	138.5	140.0	140.6	141.7	.8	3.1
White-collar occupations	132.7	133.7	134.9	136.6	138.0	139.3	141.2	142.2	142.3	.1	3.1
Excluding sales occupations	134.0	135.1	136.3	138.1	139.5	140.6	142.2	142.8	143.8	.7	3.1
Blue-collar occupations	128.2	129.2	130.0	130.9	132.1	133.2	134.3	134.8	136.2	1.0	3.1
Service occupations	129.5	130.6	132.7	133.9	135.0	135.8	137.0	137.8	139.3	1.1	3.2
Transportation and public utilities	131.3	131.7	132.9	134.2	135.8	137.1	138.5	139.3	139.7	.3	2.9
Transportation	130.6	130.9	132.1	133.4	134.0	134.9	136.7	137.3	136.8	–.4	2.1
Public utilities	132.0	132.5	133.7	135.1	137.9	139.7	140.7	141.9	143.4	1.1	4.0
Communications	130.2	130.5	131.8	134.0	136.6	139.2	140.5	141.7	143.3	1.1	4.9
Electric, gas, and sanitary services	134.2	134.9	136.0	136.4	139.6	140.3	141.0	142.1	143.4	.9	2.7
Wholesale and retail trade	130.1	131.2	132.4	132.9	134.7	135.8	137.6	138.2	138.9	.5	3.1
Excluding sales occupations	130.4	131.9	133.0	134.0	135.5	136.3	138.1	138.8	139.9	.8	3.2
Wholesale trade	132.9	133.8	134.6	135.1	137.7	138.6	140.8	142.8	142.7	–.1	3.6
Excluding sales occupations	132.6	133.7	134.5	135.4	137.0	138.2	140.0	141.2	142.4	.8	3.9
Retail trade	128.5	129.7	131.1	131.7	133.1	134.4	135.9	135.6	136.8	.9	2.8
General merchandise stores	126.4	127.7	128.6	130.0	131.2	133.0	133.2	134.0	135.0	.7	2.9
Food stores	128.2	128.2	129.8	129.4	131.3	132.9	133.7	132.7	134.3	1.2	2.3

See footnotes at end of table.

21. Continued—Employment Cost Index, compensation,[1] by occupation and industry group

[June 1989 = 100]

Series	1997				1998				1999	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended	12 months ended
										Mar. 1999	
Finance, insurance, and real estate	128.6	129.4	130.5	134.5	136.7	138.4	141.0	142.5	141.5	–.7	3.5
Excluding sales occupations	131.5	132.4	133.5	137.6	140.2	141.3	143.2	143.3	145.6	1.6	3.9
Banking, savings and loan, and other credit agencies	130.6	131.6	133.1	140.6	143.3	145.3	148.4	146.7	148.8	1.4	3.8
Insurance	131.9	132.1	133.1	134.8	137.4	138.9	141.9	141.7	141.7	.0	3.1
Services	134.6	135.7	137.0	138.5	139.3	140.3	141.8	142.7	143.5	.6	3.0
Business services	133.3	134.2	136.3	138.6	139.5	140.7	143.5	145.9	147.5	1.1	5.7
Health services	135.5	135.9	137.0	138.1	138.2	138.7	139.0	139.0	140.5	1.1	1.7
Hospitals	134.0	134.4	135.4	136.5	136.7	138.2	139.1	139.9	141.2	.9	3.3
Educational services	138.5	138.8	141.6	142.6	143.4	143.9	147.0	147.7	148.3	.4	3.4
Colleges and universities	139.5	139.9	142.5	143.7	144.3	144.8	147.8	148.5	149.2	.5	3.4
Nonmanufacturing	131.1	132.1	133.3	134.7	136.0	137.2	138.9	139.7	140.3	.4	3.2
White-collar workers	132.7	133.6	134.9	136.5	137.9	139.2	141.1	142.0	142.3	.2	3.2
Excluding sales occupations	134.0	135.1	136.2	137.9	139.3	140.5	142.0	142.7	143.7	.7	3.2
Blue-collar occupations	127.5	128.6	129.4	130.1	131.0	132.4	133.4	134.0	135.2	.9	3.2
Service occupations	129.4	130.5	132.7	133.8	134.9	135.7	136.9	137.7	139.2	1.1	3.2
State and local government workers	133.2	133.3	135.0	135.7	136.5	136.9	139.0	139.8	140.5	.5	2.9
Workers, by occupational group:											
White-collar workers	132.9	133.0	134.8	135.5	136.1	136.2	138.4	139.3	139.8	.4	2.7
Professional specialty and technical	132.5	132.5	134.6	135.1	135.6	135.6	137.7	138.5	138.8	.2	2.4
Executive, administrative, and managerial	134.1	134.4	135.6	136.4	137.5	137.9	140.4	141.6	142.6	.7	3.7
Administrative support, including clerical	133.3	133.5	135.3	136.1	136.9	137.2	139.5	140.3	141.4	.8	3.3
Blue-collar workers	132.1	132.3	133.3	134.2	135.0	135.2	136.8	137.8	138.8	.7	2.8
Workers, by industry division:											
Services	133.2	133.3	135.4	136.0	136.5	136.6	139.0	139.7	140.0	.2	2.6
Services excluding schools[5]	132.5	132.9	134.4	135.3	136.1	136.2	138.7	138.8	139.6	.6	2.6
Health services	134.5	134.9	136.0	137.2	137.9	138.0	140.3	140.7	141.2	.4	2.4
Hospitals	134.8	135.2	136.3	137.6	138.4	138.4	140.7	141.2	141.7	.4	2.4
Educational services	133.1	133.2	135.4	135.9	136.3	136.5	138.8	139.6	139.9	.2	2.6
Schools	133.4	133.5	135.7	136.2	136.6	136.7	139.1	139.9	140.2	.2	2.6
Elementary and secondary	133.1	133.3	135.5	135.8	136.1	136.2	138.8	139.3	139.6	.2	2.6
Colleges and universities	134.3	134.1	136.3	137.2	137.9	138.1	140.4	141.5	141.7	.1	2.8
Public administration[3]	133.0	133.0	134.1	135.1	136.4	137.4	138.9	139.9	140.8	.6	3.2

[1] Cost (cents per hour worked) measured in the Employment Cost Index consists of wages, salaries, and employer cost of employee benefits.

[2] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[3] Consists of legislative, judicial, administrative, and regulatory activities.

[4] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[5] Includes, for example, library, social, and health services.

22. Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1997				1998				1999	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended Mar. 1999	12 months ended Mar. 1999
Civilian workers[1]	129.2	130.1	131.6	132.8	134.0	135.0	136.8	137.7	138.4	0.5	3.3
Workers, by occupational group:											
White-collar workers	130.6	131.5	133.0	134.3	135.6	136.7	138.8	139.7	140.1	.3	3.3
Professional specialty and technical	131.4	132.3	134.0	135.0	135.8	136.6	138.5	139.4	140.1	.5	3.2
Executive, administrative, and managerial	131.0	132.0	133.5	135.6	137.4	138.3	140.5	140.3	141.6	.9	3.1
Administrative support, including clerical	130.4	131.4	132.7	133.7	135.0	136.2	137.5	138.6	140.0	1.0	3.7
Blue-collar workers	126.2	127.5	128.4	129.3	130.4	131.4	132.6	133.3	134.5	.9	3.1
Service occupations	128.6	129.3	131.5	132.6	133.7	134.5	136.1	137.0	138.3	.9	3.4
Workers, by industry division:											
Goods-producing	127.6	128.9	129.9	130.6	132.0	133.3	134.4	135.2	136.3	.8	3.3
Manufacturing	129.1	130.3	131.3	132.2	133.7	134.6	136.0	136.8	137.9	.8	3.1
Service-producing	129.8	130.6	132.2	133.6	134.8	135.7	137.8	138.7	139.2	.4	3.3
Services	132.0	132.9	134.8	136.0	136.9	137.6	139.6	140.5	141.5	.7	3.4
Health services	132.4	133.1	134.3	135.4	136.2	136.5	137.6	137.6	138.8	.9	1.9
Hospitals	131.0	131.5	132.5	133.6	134.2	135.1	136.4	137.1	138.1	.7	2.9
Educational services	132.5	132.6	135.3	135.9	136.3	136.5	139 1	140.0	140.2	.1	2.9
Public administration[2]	128.9	129.0	130.3	131.4	132.7	133.2	134.8	135.9	136.9	.7	3.2
Nonmanufacturing	129.1	130.0	131.5	132.8	134.0	135.1	137.0	137.8	138.4	.4	3.3
Private industry workers	128.6	129.7	131.0	132.3	133.7	134.9	136.6	137.4	138.1	.5	3.3
Excluding sales occupations	128.6	129.9	131.2	132.4	133.7	134.8	136.3	136.9	138.2	.9	3.4
Workers, by occupational group:											
White-collar workers	130.2	131.3	132.7	134.2	135.7	137.0	139.0	139.9	140.3	.3	3.4
Excluding sales occupations	130.8	132.0	133.4	134.8	136.3	137.5	139.1	139.7	141.0	.9	3.4
Professional specialty and technical occupations	131.0	132.4	133.7	134.8	135.9	137.1	138.7	139.7	140.7	.7	3.5
Executive, administrative, and managerial occupations	131.0	132.1	133.6	135.8	137.8	138.7	140.9	140.5	141.9	1.0	3.0
Sales occupations	127.8	128.3	129.8	131.4	133.1	135.2	138.8	141.3	137.3	−2.8	3.2
Administrative support occupations, including clerical	130.6	131.7	132.9	133.9	135.3	136.7	137.9	138.9	140.4	1.1	3.8
Blue-collar workers	126.0	127.3	128.3	129.1	130.2	131.3	132.4	133.2	134.3	.8	3.1
Precision production, craft, and repair occupations	125.8	127.4	128.2	128.7	129.8	131.2	132.3	133.0	134.3	1.0	3.5
Machine operators, assemblers, and inspectors	127.2	128.5	129.5	130.6	131.6	132.7	133.8	134.9	135.7	.6	3.1
Transportation and material moving occupations	122.3	123.0	124.1	125.1	125.9	126.4	127.6	127.8	129.1	1.0	2.5
Handlers, equipment cleaners, helpers, and laborers	128.4	129.3	130.2	131.8	133.2	133.7	135.1	135.8	137.3	1.1	3.1
Service occupations	126.6	127.6	129.9	131.1	132.1	133.0	134.4	135.3	136.7	1.0	3.5
Production and nonsupervisory occupations[3]	127.7	128.8	130.1	131.2	132.3	133.6	135.2	136.4	136.8	.3	3.4
Workers, by industry division:											
Goods-producing	127.5	128.9	129.9	130.6	132.0	133.2	134.3	135.2	136.3	.8	3.3
Excluding sales occupations	127.0	128.3	129.3	130.0	131.3	132.5	133.6	134.4	135.5	.8	3.2
White-collar occupations	130.0	131.4	132.3	132.9	135.0	136.3	137.4	138.2	139.4	.9	3.3
Excluding sales occupations	128.9	130.0	130.9	131.6	133.3	134.6	135.7	136.4	137.8	1.0	3.4
Blue-collar occupations	126.0	127.3	128.4	129.2	130.1	131.3	132.3	133.3	134.3	.8	3.2
Construction	122.0	123.6	124.7	124.9	126.0	128.1	128.5	129.3	130.7	1.1	3.7
Manufacturing	129.1	130.3	131.3	132.2	133.7	134.6	136.0	136.8	137.9	.8	3.1
White-collar occupations	130.6	131.9	132.8	133.6	135.6	136.8	138.3	139.0	140.1	.8	3.3
Excluding sales occupations	129.3	130.5	131.3	132.2	133.8	135.0	136.3	137.1	138.3	.9	3.4
Blue-collar occupations	128.0	129.2	130.2	131.2	132.3	133.1	134.3	135.3	136.3	.7	3.0
Durables	129.0	130.1	131.2	131.9	133.4	134.5	135.9	136.9	137.9	.7	3.4
Nondurables	129.3	130.6	131.4	132.6	134.2	134.9	136.0	136.8	138.0	.9	2.8
Service-producing	129.0	130.1	131.5	133.1	134.4	135.6	137.6	138.4	138.9	.4	3.3
Excluding sales occupations	129.7	130.9	132.3	133.9	135.2	136.2	137.9	138.5	139.8	.9	3.4
White-collar occupations	130.1	131.2	132.6	134.3	135.7	137.0	139.2	140.1	140.3	.1	3.4
Excluding sales occupations	131.5	132.7	134.2	135.9	137.3	138.4	140.2	140.7	142.0	.9	3.4
Blue-collar occupations	126.0	127.2	127.9	128.9	130.2	131.1	132.4	132.9	134.4	1.1	3.2
Service occupations	126.5	127.5	129.8	131.0	132.1	133.0	134.2	135.2	136.7	1.1	3.5
Transportation and public utilities	128.2	128.8	130.1	131.3	132.1	132.8	134.3	135.1	135.4	.2	2.5
Transportation	126.5	126.9	128.5	129.5	130.1	130.4	132.4	132.9	132.3	−.5	1.7
Public utilities	130.1	130.9	132.0	133.5	134.5	135.7	136.5	137.8	139.2	1.0	3.5
Communications	129.8	130.6	131.8	134.0	134.4	135.8	136.7	138.0	139.4	1.0	3.7
Electric, gas, and sanitary services	130.4	131.2	132.2	132.9	134.7	135.6	136.3	137.4	138.9	1.1	3.1
Wholesale and retail trade	128.5	129.7	130.9	131.6	133.3	134.6	136.6	137.0	137.7	.5	3.3
Excluding sales occupations	129.3	131.1	132.2	133.2	134.7	135.6	137.6	138.2	139.5	.9	3.6
Wholesale trade	131.4	132.2	133.0	133.6	136.2	137.1	139.3	141.3	140.7	−.4	3.3
Excluding sales occupations	131.8	132.8	133.9	135.0	136.5	137.8	139.6	140.8	141.9	.8	4.0
Retail trade	127.1	128.5	129.9	130.6	131.9	133.3	135.2	134.8	136.2	1.0	3.3
Food stores	124.8	124.7	126.7	127.0	129.0	130.5	131.7	130.5	131.8	1.0	2.2
General merchandise stores	125.0	126.2	126.7	128.4	129.4	131.5	132.2	133.0	133.7	.5	3.3

See footnotes at end of table.

22. Continued—Employment Cost Index, wages and salaries, by occupation and industry group

[June 1989 = 100]

Series	1997				1998				1999	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended Mar. 1999	12 months ended Mar. 1999
Finance, insurance, and real estate	124.5	125.3	126.4	130.6	132.6	134.8	138.1	139.8	137.2	−1.9	3.5
Excluding sales occupations	127.2	128.1	129.3	133.6	135.9	137.5	139.7	139.6	141.0	1.0	3.8
Banking, savings and loan, and other credit agencies	125.9	126.8	128.9	138.3	140.9	143.2	147.0	144.4	146.1	1.2	3.7
Insurance	127.9	128.0	128.7	130.2	133.1	134.8	138.7	138.5	137.4	−.8	3.2
Services	131.8	133.0	134.7	136.2	137.2	138.3	140.0	140.8	142.2	1.0	3.6
Business services	131.4	132.4	134.9	137.3	137.6	139.2	141.8	144.1	145.4	.9	5.7
Health services	132.5	133.2	134.3	135.4	136.2	136.5	137.5	137.4	138.7	.9	1.8
Hospitals	130.7	131.2	132.2	133.2	133.6	134.7	135.8	136.5	137.6	.8	3.0
Educational services	134.5	134.8	137.8	138.4	139.1	139.6	142.8	143.5	143.9	.3	3.5
Colleges and universities	134.6	135.0	137.8	138.7	139.1	139.7	142.8	143.6	144.1	.3	3.6
Nonmanufacturing	128.2	129.3	130.7	132.1	133.4	134.7	136.5	137.4	137.9	.4	3.4
White-collar workers	129.9	131.0	132.4	134.1	135.5	136.8	138.9	139.8	140.1	.2	3.4
Excluding sales occupations	131.2	132.4	133.8	135.5	136.9	138.1	139.8	140.3	141.6	.9	3.4
Blue-collar occupations	124.1	125.5	126.4	127.1	128.2	129.5	130.5	131.1	132.4	1.0	3.3
Service occupations	126.4	127.4	129.7	130.9	132.0	132.9	134.1	135.1	136.5	1.0	3.4
State and local government workers	131.4	131.5	133.6	134.4	135.1	135.4	137.6	138.5	139.0	.4	2.9
Workers, by occupational group:											
White-collar workers	131.4	131.5	133.7	134.5	135.0	135.2	137.6	138.5	138.9	.3	2.9
Professional specialty and technical	131.9	132.0	134.4	135.1	135.5	135.6	137.9	138.7	138.9	.1	2.5
Executive, administrative, and managerial	131.3	131.7	133.1	134.1	135.1	135.6	138.0	139.3	140.1	.6	3.7
Administrative support, including clerical	129.2	129.5	131.4	132.3	133.0	133.3	135.4	136.5	137.4	.7	3.3
Blue-collar workers	129.6	129.8	131.2	132.3	133.1	133.5	135.1	136.0	136.9	.7	2.9
Workers, by industry division:											
Services	132.1	132.2	134.7	135.3	135.7	135.9	138.4	139.2	139.5	.2	2.8
Services excluding schools[4]	131.2	131.6	133.3	134.4	135.4	135.5	137.8	138.2	139.0	.6	2.7
Health services	132.1	132.6	133.9	135.3	136.3	136.5	138.7	139.2	139.7	.4	2.5
Hospitals	131.9	132.4	133.7	135.2	136.3	136.5	138.6	139.1	139.7	.4	2.5
Educational services	132.1	132.2	134.8	135.3	135.7	135.8	138.4	139.3	139.5	.1	2.8
Schools	132.2	132.3	134.9	135.5	135.8	136.0	138.5	139.5	139.6	.1	2.8
Elementary and secondary	132.4	132.6	135.3	135.7	136.0	136.1	138.7	139.3	139.5	.1	2.6
Colleges and universities	131.5	131.4	133.6	134.6	135.2	135.5	137.7	139.6	139.6	.0	3.3
Public administration[2]	128.9	129.0	130.3	131.4	132.7	133.2	134.8	135.9	136.9	.7	3.2

[1] Consists of private industry workers (excluding farm and household workers) and State and local government (excluding Federal Government) workers.

[2] Consists of legislative, judicial, administrative, and regulatory activities.

[3] This series has the same industry and occupational coverage as the Hourly Earnings index, which was discontinued in January 1989.

[4] Includes, for example, library, social, and health services.

23. Employment Cost Index, benefits, private industry workers by occupation and industry group

[June 1989 = 100]

Series	1997				1998				1999	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended Mar. 1999	12 months ended Mar. 1999
Private industry workers	139.4	140.1	140.8	141.8	142.6	143.7	144.5	145.2	145.8	0.4	2.2
Workers, by occupational group:											
White-collar workers	140.8	141.5	142.0	143.4	144.7	145.6	146.6	147.4	147.9	.3	2.2
Blue-collar workers	137.2	138.0	138.8	139.0	139.1	140.4	141.0	141.6	142.2	.4	2.2
Workers, by industry division:											
Goods-producing	139.9	140.9	141.5	141.5	141.5	142.5	143.0	143.2	144.3	.8	2.0
Service-producing	138.5	139.2	139.8	141.4	142.7	143.8	144.9	145.7	146.1	.3	2.4
Manufacturing	139.9	141.0	141.4	141.7	141.7	142.4	142.6	142.7	143.6	.6	1.3
Nonmanufacturing	138.9	139.5	140.2	141.5	142.7	143.9	145.0	145.8	146.3	.3	2.5

24. Employment Cost Index, private nonfarm workers by bargaining status, region, and area size

[June 1989 = 100]

Series	1997				1998				1999	Percent change	
	Mar.	June	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	3 months ended Mar. 1999	12 months ended Mar. 1999
COMPENSATION											
Workers, by bargaining status[1]											
Union	131.0	131.8	133.2	133.5	134.0	135.3	136.8	137.5	130.8	0.4	3.0
Goods-producing	130.0	131.2	132.3	132.5	132.7	134.3	135.6	136.5	136.8	.2	3.1
Service-producing	131.9	132.4	134.0	134.5	135.3	136.2	138.0	138.5	139.2	.5	2.9
Manufacturing	130.8	131.7	133.0	133.3	133.6	134.6	136.0	136.9	137.0	.1	2.5
Nonmanufacturing	130.6	131.5	132.9	133.2	133.9	135.3	136.9	137.4	138.1	.5	3.1
Nonunion	131.8	132.8	133.9	135.3	136.7	137.8	139.3	140.1	140.8	.5	3.0
Goods-producing	132.0	133.2	134.0	134.7	135.9	136.9	137.7	138.3	139.7	1.0	2.8
Service-producing	131.5	132.5	133.7	135.3	136.7	138.0	139.7	140.6	141.1	.4	3.2
Manufacturing	133.1	134.4	135.1	135.9	137.2	138.0	138.9	139.4	140.7	.9	2.6
Nonmanufacturing	131.1	132.2	133.4	134.9	136.3	137.5	139.1	140.0	140.6	.4	3.2
Workers, by region[1]											
Northeast	132.2	133.1	134.0	135.0	136.0	137.0	138.7	139.5	140.5	.7	3.3
South	130.8	131.5	132.5	134.6	135.5	136.4	137.6	138.1	139.1	.7	2.7
Midwest (formerly North Central)	133.3	134.7	136.2	136.9	138.3	139.6	140.9	141.4	141.7	.2	2.5
West	130.3	131.4	132.5	133.4	135.2	136.6	138.5	140.0	140.3	.2	3.8
Workers, by area size[1]											
Metropolitan areas	131.7	132.8	133.9	135.1	136.4	137.5	139.1	139.8	140.4	.4	2.9
Other areas	131.4	132.4	133.8	135.3	135.9	137.1	138.2	139.4	140.5	.8	3.4
WAGES AND SALARIES											
Workers, by bargaining status[1]											
Union	126.0	126.9	128.3	128.9	129.6	130.7	132.4	133.1	133.6	.4	3.1
Goods-producing	124.1	125.4	126.6	127.1	127.9	129.4	131.0	131.7	132.3	.5	3.4
Service-producing	128.2	128.8	130.4	131.2	131.8	132.2	134.1	134.8	135.4	.4	2.7
Manufacturing	125.6	126.5	127.8	128.6	129.6	130.4	132.2	133.0	133.6	.5	3.1
Nonmanufacturing	126.1	127.1	128.6	129.1	129.6	130.8	132.4	133.1	133.7	.5	3.2
Nonunion	129.1	130.3	131.6	133.0	134.5	135.7	137.4	138.3	139.0	.5	3.3
Goods-producing	128.9	130.2	131.2	132.0	133.6	134.7	135.7	136.5	137.8	1.0	3.1
Service-producing	129.1	130.2	131.6	133.2	134.6	135.9	137.9	138.8	139.3	.4	3.5
Manufacturing	130.3	131.7	132.6	133.5	135.1	136.2	137.3	138.2	139.4	.9	3.2
Nonmanufacturing	128.5	129.7	131.1	132.6	134.0	135.3	137.1	138.0	138.6	.4	3.4
Workers, by region[1]											
Northeast	128.8	129.8	130.7	131.6	132.6	133.8	135.4	136.4	137.1	.5	3.4
South	128.5	129.4	130.6	133.0	134.0	134.9	136.5	136.7	137.9	.9	2.9
Midwest (formerly North Central)	129.0	130.4	132.2	133.0	134.7	136.0	137.5	138.0	138.9	.7	3.1
West	127.7	128.9	130.2	131.2	132.9	134.5	136.7	138.4	138.2	−.1	4.0
Workers, by area size[1]											
Metropolitan areas	128.7	129.9	131.1	132.3	133.8	135.1	136.9	137.7	138.3	.4	3.4
Other areas	127.7	128.8	130.4	132.0	132.5	133.4	134.7	136.0	137.1	.8	3.5

[1] The indexes are calculated differently from those for the occupation and industry groups. For a detailed description of the index calculation, see the *Monthly Labor Review* Technical Note, "Estimation procedures for the Employment Cost Index," May 1982.

25. Percent of full-time employees participating in employer-provided benefit plans, and in selected features within plans, medium and large private establishments, selected years, 1980–97

Item	1980	1982	1984	1986	1988	1989	1991	1993	1995	1997
Scope of survey (in 000's)	21,352	21,043	21,013	21,303	31,059	32,428	31,163	28,728	33,374	38,409
Number of employees (in 000's):										
With medical care	20,711	20,412	20,383	20,238	27,953	29,834	25,865	23,519	25,546	29,340
With life insurance	20,498	20,201	20,172	20,451	28,574	30,482	29,293	26,175	29,078	33,495
With defined benefit plan	17,936	17,676	17,231	16,190	19,567	20,430	18,386	16,015	17,417	19,202
Time-off plans										
Participants with:										
Paid lunch time	10	9	9	10	11	10	8	9	–	–
Average minutes per day	–	25	26	27	29	26	30	29	–	–
Paid rest time	75	76	73	72	72	71	67	68	–	–
Average minutes per day	–	25	26	26	26	26	28	26	–	–
Paid funeral leave	–	–	–	88	85	84	80	83	80	81
Average days per occurrence	–	–	–	3.2	3.2	3.3	3.3	3.0	3.3	3.7
Paid holidays	99	99	99	99	96	97	92	91	89	89
Average days per year	10.1	10.0	9.8	10.0	9.4	9.2	10.2	9.4	9.1	9.3
Paid personal leave	20	24	23	25	24	22	21	21	22	20
Average days per year	–	3.8	3.6	3.7	3.3	3.1	3.3	3.1	3.3	3.5
Paid vacations	100	99	99	100	98	97	96	97	96	95
Paid sick leave [1]	62	67	67	70	69	68	67	65	58	56
Unpaid maternity leave	–	–	–	–	33	37	37	60	–	–
Unpaid paternity leave	–	–	–	–	16	18	26	53	–	–
Unpaid family leave	–	–	–	–	–	–	–	–	84	93
Insurance plans										
Participants in medical care plans	97	97	97	95	90	92	83	82	77	76
Percent of participants with coverage for:										
Home health care	–	–	46	66	76	75	81	86	78	85
Extended care facilities	58	62	62	70	79	80	80	82	73	78
Physical exam	–	–	8	18	28	28	30	42	56	63
Percent of participants with employee contribution required for:										
Self coverage	26	27	36	43	44	47	51	61	67	69
Average monthly contribution	–	–	$11.93	$12.80	$19.29	$25.31	$26.60	$31.55	$33.92	$39.14
Family coverage	46	51	58	63	64	66	69	76	78	80
Average monthly contribution	–	–	$35.93	$41.40	$60.07	$72.10	$96.97	$107.42	$118.33	$130.07
Participants in life insurance plans	96	96	96	96	92	94	94	91	87	87
Percent of participants with:										
Accidental death and dismemberment insurance	69	72	74	72	78	71	71	76	77	74
Survivor income benefits	–	–	–	10	8	7	6	5	7	6
Retiree protection available	–	64	64	59	49	42	44	41	37	33
Participants in long-term disability insurance plans	40	43	47	48	42	45	40	41	42	43
Participants in sickness and accident insurance plans	54	51	51	49	46	43	45	44	–	–
Participants in short-term disability plans [1]	–	–	–	–	–	–	–	–	53	55
Retirement plans										
Participants in defined benefit pension plans	84	84	82	76	63	63	59	56	52	50
Percent of participants with:										
Normal retirement prior to age 65	55	58	63	64	59	62	55	52	52	52
Early retirement available	98	97	97	98	98	97	98	95	96	95
Ad hoc pension increase in last 5 years	–	–	47	35	26	22	7	6	4	10
Terminal earnings formula	53	52	54	57	55	64	56	61	58	56
Benefit coordinated with Social Security	45	45	56	62	62	63	54	48	51	49
Participants in defined contribution plans	–	–	–	60	45	48	48	49	55	57
Participants in plans with tax-deferred savings arrangements	–	–	–	33	36	41	44	43	54	55
Other benefits										
Employees eligible for:										
Flexible benefits plans	–	–	–	2	5	9	10	12	12	13
Reimbursement accounts [2]	–	–	–	5	12	23	36	52	38	32
Premium conversion plans	–	–	–	–	–	–	–	–	5	7

[1] The definitions for paid sick leave and short-term disability (previously sickness and accident insurance) were changed for the 1995 survey. Paid sick leave now includes only plans that specify either a maximum number of days per year or unlimited days. Short-terms disability now includes all insured, self-insured, and State-mandated plans available on a per-disability basis, as well as the unfunded per-disability plans previously reported as sick leave. Sickness and accident insurance, reported in years prior to this survey, included only insured, self-insured, and State-mandated plans providing per-disability benefits at less than full pay.

[2] Prior to 1995, reimbursement accounts included premium conversion plans, which specifically allow medical plan participants to pay required plan premiums with pretax dollars. Also, reimbursement accounts that were part of flexible benefit plans were tabulated separately.

NOTE: Dash indicates data not available.

26. Percent of full-time employees participating in employer-provided benefit plans, and in selected features within plans, small private establishments and State and local governments, 1987, 1990, 1992, 1994, and 1996

Item	Small private establishments				State and local governments			
	1990	1992	1994	1996	1987	1990	1992	1994
Scope of survey (in 000's)	32,466	34,360	35,910	39,816	10,321	12,972	12,466	12,907
Number of employees (in 000's):								
With medical care	22,402	24,396	23,536	25,599	9,599	12,064	11,219	11,192
With life insurance	20,778	21,990	21,955	24,635	8,773	11,415	11,095	11,194
With defined benefit plan	6,493	7,559	5,480	5,883	9,599	11,675	10,845	11,708
Time-off plans								
Participants with:								
Paid lunch time	8	9	–	–	17	11	10	–
Average minutes per day	37	37	–	–	34	36	34	–
Paid rest time	48	49	–	–	58	56	53	–
Average minutes per day	27	26	–	–	29	29	29	–
Paid funeral leave	47	50	50	51	56	63	65	62
Average days per occurrence	2.9	3.0	3.1	3.0	3.7	3.7	3.7	3.7
Paid holidays	84	82	82	80	81	74	75	73
Average days per year[1]	9.5	9.2	7.5	7.6	10.9	13.6	14.2	11.5
Paid personal leave	11	12	13	14	38	39	38	38
Average days per year	2.8	2.6	2.6	3.0	2.7	2.9	2.9	3.0
Paid vacations	88	88	88	86	72	67	67	66
Paid sick leave[2]	47	53	50	50	97	95	95	94
Unpaid leave	17	18	–	–	57	51	59	–
Unpaid paternity leave	8	7	–	–	30	33	44	–
Unpaid family leave	–	–	47	48	–	–	–	93
Insurance plans								
Participants in medical care plans	69	71	66	64	93	93	90	87
Percent of participants with coverage for:								
Home health care	79	80	–	–	76	82	87	84
Extended care facilities	83	84	–	–	78	79	84	81
Physical exam	26	28	–	–	36	36	47	55
Percent of participants with employee contribution required for:								
Self coverage	42	47	52	52	35	38	43	47
Average monthly contribution	$25.13	$36.51	$40.97	$42.63	$15.74	$25.53	$28.97	$30.20
Family coverage	67	73	76	75	71	65	72	71
Average monthly contribution	$109.34	$150.54	$159.63	$181.53	$71.89	$117.59	$139.23	$149.70
Participants in life insurance plans	64	64	61	62	85	88	89	87
Percent of participants with:								
Accidental death and dismemberment insurance	78	76	79	77	67	67	74	64
Survivor income benefits	1	1	2	1	1	1	1	2
Retiree protection available	19	25	20	13	55	45	46	46
Participants in long-term disability insurance plans	19	23	20	22	31	27	28	30
Participants in sickness and accident insurance plans	6	26	26	–	14	21	22	21
Participants in short-term disability plans[2]	–	–	–	29	–	–	–	–
Retirement plans								
Participants in defined benefit pension plans	20	22	15	15	93	90	87	91
Percent of participants with:								
Normal retirement prior to age 65	54	50	–	47	92	89	92	92
Early retirement available	95	95	–	92	90	88	89	87
Ad hoc pension increase in last 5 years	7	4	–	–	33	16	10	13
Terminal earnings formula	58	54	–	53	100	100	100	99
Benefit coordinated with Social Security	49	46	–	44	18	8	10	49
Participants in defined contribution plans	31	33	34	38	9	9	9	9
Participants in plans with tax-deferred savings arrangements	17	24	23	28	28	45	45	24
Other benefits								
Employees eligible for:								
Flexible benefits plans	1	2	3	4	5	5	5	5
Reimbursement accounts[3]	8	14	19	12	5	31	50	64
Premium conversion plans				7				

[1] Methods used to calculate the average number of paid holidays were revised in 1994 to count partial days more precisely. Average holidays for 1994 are not comparable with those reported in 1990 and 1992.

[2] The definitions for paid sick leave and short-term disability (previously sickness and accident insurance) were changed for the 1996 survey. Paid sick leave now includes only plans that specify either a maximum number of days per year or unlimited days. Short-term disability now includes all insured, self-insured, and State-mandated plans available on a per-disability basis, as well as the unfunded per-disability plans previously reported as sick leave. Sickness and accident insurance, reported in years prior to this survey, included only insured, self-insured, and State-mandated plans providing per-disability benefits at less than full pay.

[3] Prior to 1996, reimbursement accounts included premium conversion plans, which specifically allow medical plan participants to pay required plan premiums with pretax dollars. Also, reimbursement accounts that were part of flexible benefit plans were tabulated separately.

NOTE: Dash indicates data not available.

27. Work stoppages involving 1,000 workers or more

Measure	Annual totals		1998									1999			
	1997	1998	Apr.	May.	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.[P]	Feb.[P]	Mar.[P]	Apr.[P]
Number of stoppages:															
Beginning in period	29	34	0	4	4	3	6	1	5	3	3	1	2	0	1
In effect during period	34	34	0	4	6	6	7	4	7	7	6	5	5	2	3
Workers involved:															
Beginning in period (in thousands)	339	387	.0	6.1	162.9	5.5	144.7	28.9	8.0	7.1	3.8	1.4	4.1	.0	8.0
In effect during period (in thousands)	351	387	.0	6.1	165.4	163.1	145.9	42.6	10.6	13.7	10.4	9.2	10.3	4.4	12.4
Days idle:															
Number (in thousands)	4,497	5,116	0.0	72.7	1,542.9	2,043.2	580.4	320.4	148.7	160.3	171.0	129.0	104.1	101.2	256.8
Percent of estimated working time[1]	.01	.02	.00	.00	.05	.07	.02	.01	.01	.01	.01	.01	.00	.00	.01

[1] Agricultural and government employees are included in the total employed and total working time; private household, forestry, and fishery employees are excluded. An explanation of the measurement of idleness as a percentage of the total time worked is found in " 'Total economy' measures of strike idleness," *Monthly Labor Review*, October 1968, pp. 54–56.
[P] = preliminary.

28. Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
CONSUMER PRICE INDEX FOR ALL URBAN CONSUMERS															
All items	160.5	163.0	163.0	163.2	163.4	163.6	164.0	164.0	163.9	164.3	164.5	165.0	166.2	166.2	166.2
Food and beverages	157.7	161.1	160.6	160.9	161.4	161.5	162.4	162.5	162.7	163.9	163.8	163.7	163.9	164.2	164.1
Food	157.3	160.7	160.1	160.5	161.0	161.1	162.0	162.1	162.3	163.6	163.3	163.3	163.4	163.7	163.6
Food at home	158.1	161.1	160.5	160.8	161.4	161.2	162.5	162.5	162.6	164.3	163.8	163.4	163.5	163.9	163.7
Cereals and bakery products	177.6	181.1	181.6	181.8	182.7	181.9	182.2	182.1	182.3	184.2	183.8	183.5	184.8	185.1	185.7
Meats, poultry, fish, and eggs	148.5	147.3	146.3	146.9	148.2	147.5	148.0	147.9	147.3	146.4	147.0	146.8	146.7	146.7	147.2
Dairy and related products[1]	145.5	150.8	148.1	148.2	150.5	152.9	155.0	155.9	157.6	161.2	162.3	161.5	156.1	156.2	156.1
Fruits and vegetables	187.5	198.2	198.1	198.2	195.9	193.5	199.5	198.8	200.7	208.6	200.3	199.9	203.3	207.2	203.2
Nonalcoholic beverages and beverage materials	133.4	133.0	132.8	132.3	132.0	132.2	132.6	132.7	131.7	133.5	134.5	134.5	134.3	134.2	134.3
Other foods at home	147.3	150.8	150.4	151.1	152.1	152.2	152.7	152.7	152.4	153.0	153.3	152.9	153.6	153.4	153.6
Sugar and sweets	147.8	150.2	150.5	149.9	150.2	150.8	150.5	149.6	150.1	151.7	151.3	151.0	151.7	153.0	152.4
Fats and oils	141.7	146.9	143.3	147.6	149.7	152.4	156.8	155.1	151.9	150.5	150.9	149.4	149.0	147.2	147.5
Other foods	161.2	165.5	165.6	165.9	166.9	166.3	166.0	166.7	166.9	167.7	168.2	168.1	169.2	168.7	169.2
Other miscellaneous foods[1,2]	–	102.6	102.5	102.6	103.5	103.6	103.5	104.8	104.9	104.1	105.9	104.9	105.6	105.0	104.9
Food away from home[1]	157.0	161.1	160.7	161.1	161.5	162.1	162.3	162.6	163.0	163.5	163.8	164.2	164.5	164.6	164.6
Other food away from home[1,2]	–	101.6	101.0	101.6	102.3	102.7	102.7	103.3	103.3	103.5	103.7	103.7	104.0	104.3	104.4
Alcoholic beverages	162.8	165.7	165.5	165.6	165.7	166.3	166.6	166.8	167.2	167.6	168.6	168.4	168.8	169.3	169.5
Housing	156.8	160.4	160.6	161.2	161.5	161.5	131.4	161.3	161.3	161.8	162.3	162.8	163.0	163.0	164.1
Shelter	176.3	182.1	181.8	182.6	183.3	183.4	183.9	184.0	184.0	184.7	185.5	186.3	186.6	186.5	187.2
Rent of primary residence	166.7	172.1	171.7	172.2	172.8	173.4	173.9	174.5	174.9	175.3	175.6	176.0	176.4	176.7	177.1
Lodging away from home[2]	–	109.0	109.6	111.7	112.9	109.8	109.5	106.3	103.8	107.1	110.5	114.5	114.6	111.8	113.8
Owners' equivalent rent of primary residence[3]	181.9	187.8	187.4	188.0	188.5	189.2	189.8	190.3	190.7	191.0	191.3	191.5	191.9	192.2	192.6
Tenants' and household insurance[1,2]	–	99.8	99.1	99.3	99.2	99.2	99.7	99.9	99.9	99.7	100.1	100.2	100.3	100.5	102.2
Fuels and utilities	130.8	128.5	131.2	131.3	130.6	130.0	127.1	126.5	126.6	126.2	126.0	125.9	125.7	126.5	130.2
Fuels	117.9	113.7	116.8	116.8	115.9	115.2	112.0	111.4	111.4	110.9	110.6	110.5	110.2	111.0	115.1
Fuel oil and other fuels	99.8	90.0	89.5	87.8	86.7	85.9	86.4	86.8	86.1	86.6	86.2	86.2	87.7	87.7	87.3
Gas (piped) and electricity	125.1	121.2	124.7	124.9	124.0	123.3	119.6	118.9	118.9	118.3	118.0	117.9	117.5	118.4	123.0
Household furnishings and operations	125.4	126.6	126.7	127.2	126.8	126.5	126.6	126.6	126.6	126.8	126.7	126.7	127.2	126.7	126.8
Apparel	132.9	133.0	132.5	129.6	131.6	133.6	135.6	135.0	130.7	127.9	129.7	132.7	135.2	134.2	130.9
Men's and boys' apparel	130.1	131.8	131.0	129.4	130.6	131.1	134.1	134.1	130.3	128.1	129.9	131.4	133.5	133.8	131.4
Women's and girls' apparel	126.1	126.0	125.8	120.6	123.8	127.8	128.8	127.5	122.4	117.7	120.6	126.3	128.7	127.3	122.6
Infants' and toddlers' apparel[1]	129.0	126.1	124.7	122.0	124.4	124.9	130.2	131.3	129.6	130.0	126.4	125.6	128.2	127.6	126.8
Footwear	127.6	128.0	128.2	127.0	127.7	128.6	130.3	130.4	127.5	125.6	124.8	126.4	129.2	127.4	125.4
Transportation	144.3	141.6	141.7	141.8	141.2	140.7	141.3	141.5	140.7	140.4	139.8	140.6	144.3	144.2	143.4
Private transportation	141.0	137.9	138.2	138.0	137.4	137.0	137.7	138.0	137.2	136.7	135.9	136.4	140.1	140.2	139.7
New and used motor vehicles[2]	100.5	100.1	99.7	99.9	99.9	99.8	100.1	100.7	100.9	100.6	99.9	99.6	99.7	99.7	99.7
New vehicles	144.3	143.4	142.6	142.7	142.8	142.3	142.5	143.5	144.1	144.4	143.8	143.4	143.3	142.9	142.5
Used cars and trucks[1]	151.1	150.6	150.9	151.3	151.1	151.9	153.0	154.0	153.1	150.6	148.3	147.4	148.3	149.6	150.9
Motor fuel	106.2	92.2	94.8	93.7	91.6	90.0	90.8	89.7	86.2	85.0	83.6	86.3	100.9	101.4	99.2
Gasoline (all types)	105.8	91.6	94.3	93.2	91.1	89.5	90.3	89.2	85.7	84.5	83.1	85.8	100.4	100.8	98.6
Motor vehicle parts and equipment	101.9	101.1	101.0	101.1	101.2	101.2	101.4	101.4	101.2	101.2	100.9	100.1	100.3	100.2	100.1
Motor vehicle maintenance and repair	162.7	167.1	166.5	166.8	167.3	168.3	169.0	169.5	169.6	169.8	170.4	170.6	170.9	171.3	171.7
Public transportation	186.7	190.3	188.2	192.0	192.2	190.2	189.9	187.4	188.4	190.4	193.1	198.8	201.4	198.4	192.6
Medical care	234.6	242.1	242.0	242.7	243.5	243.9	244.3	244.7	245.2	246.6	247.7	248.3	249.1	249.5	250.2
Medical care commodities	215.3	221.8	222.1	222.2	223.1	224.0	224.2	224.5	225.6	225.9	226.8	227.7	229.3	229.4	230.5
Medical care services	239.1	246.8	246.5	247.4	248.2	248.4	249.0	249.3	249.6	251.3	252.6	253.1	253.5	254.0	254.6
Professional services	215.4	222.2	222.5	222.8	223.3	223.7	224.2	224.4	224.6	225.8	226.8	227.4	228.2	228.6	229.3
Hospital and related services	278.4	287.5	285.8	288.2	289.5	289.2	290.2	290.8	291.4	294.4	296.2	296.6	296.3	297.0	297.6
Recreation[2]	99.6	101.1	101.2	101.1	101.3	101.3	101.1	101.3	101.2	101.7	101.8	101.8	102.0	102.2	102.2
Video and audio[1,2]	99.4	101.1	101.2	101.1	101.2	101.4	101.1	100.8	100.7	101.4	101.6	101.2	101.0	100.9	100.7
Education and communication[2]	98.4	100.3	100.1	100.0	100.1	100.9	101.0	101.0	100.7	100.9	100.9	100.8	100.7	100.4	100.3
Education[2]	97.3	102.1	100.8	101.0	102.6	104.3	104.5	104.6	104.7	105.0	105.3	105.4	105.5	105.6	105.7
Educational books and supplies	238.4	250.8	248.6	249.0	249.1	253.7	257.0	257.1	257.3	258.4	261.3	261.4	261.2	261.6	262.1
Tuition, other school fees, and child care	280.4	294.2	290.4	291.1	295.8	300.9	301.2	301.4	301.7	302.4	303.3	303.5	303.8	304.1	304.4
Communication[1,2]	100.3	98.7	99.4	99.1	97.9	97.9	97.8	97.8	97.1	97.3	96.9	96.6	96.3	95.7	95.5
Information and information processing[1,2]	100.4	98.5	99.3	99.0	97.7	97.7	97.6	97.6	96.9	96.9	96.5	96.1	95.8	95.2	94.9
Telephone services[1,2]	–	100.7	101.4	101.5	100.4	100.7	100.7	101.1	100.3	100.7	100.4	100.2	100.0	99.6	99.7
Information and information processing other than telephone services[1,4]	50.1	39.9	40.6	39.1	37.6	36.7	36.1	35.3	34.8	33.8	33.3	32.4	32.1	30.9	29.8
Personal computers and peripheral equipment[1,2]	–	78.2	80.0	75.2	71.1	68.5	67.5	65.6	64.2	61.4	59.7	57.6	56.8	55.7	54.5
Other goods and services	224.8	237.7	236.4	237.8	238.0	240.4	241.3	240.5	250.3	255.4	255.0	253.3	256.1	255.8	255.9
Tobacco and smoking products	243.7	274.8	266.9	273.2	273.7	283.5	284.9	281.3	331.2	354.2	348.7	335.9	349.9	345.5	343.2
Personal care[1]	152.7	156.7	156.8	157.0	157.1	157.5	158.1	158.0	158.3	158.9	159.4	160.0	160.2	160.7	161.1
Personal care products[1]	144.2	148.3	149.2	149.1	148.5	149.1	149.4	148.8	148.7	149.9	149.8	150.8	150.9	150.9	152.6
Personal care services[1]	162.4	166.0	165.3	166.1	166.6	167.1	167.5	167.6	168.3	168.8	169.3	169.9	170.3	171.0	170.9
Miscellaneous personal services	226.1	234.7	234.7	235.1	235.7	236.2	236.9	237.2	237.8	238.9	240.6	241.1	241.4	242.1	242.4

28. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Commodity and service group:															
Commodities	141.8	141.9	141.8	141.6	141.7	141.8	142.6	142.5	142.2	142.5	142.2	142.6	144.6	144.5	143.9
Food and beverages	157.7	161.1	160.6	160.9	161.4	161.5	162.4	162.5	162.7	163.9	163.8	163.7	163.9	164.2	164.1
Commodities less food and beverages	132.2	130.5	130.6	130.1	130.0	130.2	130.8	130.6	130.2	129.9	129.6	130.2	133.2	132.8	131.9
Nondurables less food and beverages	134.6	132.6	133.0	131.8	131.9	132.6	133.6	132.9	132.1	131.8	131.9	133.2	138.6	138.2	136.6
Apparel	132.9	133.0	132.5	129.6	131.6	133.6	135.6	135.0	130.7	127.9	129.7	132.7	135.2	134.2	130.9
Nondurables less food, beverages, and apparel	140.6	137.4	138.2	138.0	137.1	137.1	137.6	136.8	137.8	138.8	138.0	138.5	145.7	145.6	144.8
Durables	128.7	127.6	127.4	127.5	127.2	126.8	126.9	127.4	127.4	127.1	126.4	126.0	126.1	125.8	125.7
Services	179.4	184.2	184.2	184.9	185.3	185.5	185.5	185.6	185.7	186.3	186.9	187.6	187.8	187.9	188.6
Rent of shelter[3]	183.4	189.6	189.3	190.1	190.8	191.0	191.5	191.5	191.5	192.3	193.1	193.9	194.3	194.2	194.9
Transporatation services	185.0	187.9	187.1	187.8	187.8	187.3	188.2	188.3	188.4	188.8	189.3	190.7	191.0	190.4	189.3
Other services	209.6	216.9	216.6	216.9	217.6	219.0	219.0	219.5	219.5	220.5	221.1	221.3	221.7	221.9	222.2
Special indexes:															
All items less food	161.1	163.4	163.5	163.6	163.9	164.1	164.4	164.3	164.2	164.5	164.7	165.3	166.7	166.6	166.7
All items less shelter	155.9	157.2	157.3	157.3	157.4	157.6	157.9	157.9	157.8	158.1	158.1	158.5	159.9	159.9	159.7
All items less medical care	156.3	158.6	158.6	158.7	159.0	159.2	159.5	159.5	159.4	159.8	160.0	160.5	161.6	161.6	161.6
Commodities less food	133.4	132.0	132.1	131.5	131.4	131.6	132.3	132.1	131.7	131.4	131.1	131.7	134.6	134.3	133.4
Nondurables less food	136.3	134.6	134.9	133.8	133.9	134.6	135.6	135.0	134.2	133.9	134.0	135.3	140.4	140.1	138.6
Nondurables less food and apparel	141.8	139.2	139.9	139.7	138.9	138.9	139.5	138.8	139.7	140.7	140.0	140.5	147.0	147.0	146.3
Nondurables	146.4	146.9	146.9	146.4	146.8	147.1	148.1	147.8	147.5	147.9	147.9	148.5	151.4	151.4	150.5
Services less rent of shelter[3]	188.1	191.8	192.1	192.6	192.7	193.0	192.6	192.7	192.8	193.3	193.8	194.2	194.5	194.7	195.6
Services less medical care services	173.9	178.4	178.4	179.0	179.5	179.6	179.7	179.7	179.8	180.3	180.9	181.5	181.8	181.8	182.6
Energy	111.5	102.9	105.7	105.2	103.8	102.7	101.3	100.5	98.9	98.1	97.3	98.4	105.0	105.6	106.8
All items less energy	167.1	170.9	170.5	170.8	171.2	171.6	172.2	172.3	172.3	172.9	173.2	173.7	174.2	174.1	174.0
All items less food and energy	169.5	173.4	173.0	173.3	173.8	174.2	174.7	174.8	174.8	175.3	175.7	176.2	176.8	176.6	176.6
Commodities less food and energy	142.3	143.2	142.8	142.4	142.7	143.2	143.8	143.8	143.9	143.7	143.7	143.9	144.9	144.5	143.7
Energy commodities	105.7	92.1	94.5	93.3	91.3	89.8	90.5	89.6	86.3	85.2	83.9	86.4	99.9	100.3	98.3
Services less energy	185.0	190.6	190.3	190.9	191.5	191.8	192.3	192.4	192.5	193.2	194.0	194.7	195.0	195.0	195.3
CONSUMER PRICE INDEX FOR URBAN WAGE EARNERS AND CLERICAL WORKERS															
All items	157.6	159.7	159.7	159.8	160.0	160.2	160.6	160.7	160.7	161.0	161.1	161.4	162.7	162.8	162.8
Food and beverages	157.2	160.4	159.9	160.2	160.7	160.8	161.6	161.7	161.9	163.1	163.0	162.9	163.0	163.3	163.3
Food	156.8	160.0	159.5	159.8	160.4	160.4	161.3	161.4	161.5	162.8	162.6	162.6	162.6	162.9	162.8
Food at home	157.2	160.0	159.4	159.7	160.4	160.2	161.3	161.3	161.3	163.1	162.6	162.3	162.2	162.6	162.5
Cereals and bakery products	177.3	180.9	181.4	181.6	182.5	181.8	181.9	181.9	182.0	184.0	183.5	183.2	184.5	184.8	185.5
Meats, poultry, fish, and eggs	148.2	147.0	145.9	146.6	147.9	147.1	147.5	147.6	146.9	146.0	146.7	146.4	146.3	146.1	146.9
Dairy and related products[1]	145.2	150.4	147.7	147.8	150.1	152.6	154.6	155.5	157.4	161.1	162.2	161.5	155.7	155.8	155.7
Fruits and vegetables	186.6	197.0	197.1	197.3	194.9	192.5	198.4	197.6	199.0	207.3	199.3	198.7	201.7	205.3	201.9
Nonalcoholic beverages and beverage materials	132.3	131.8	131.6	131.2	130.7	130.9	131.3	131.4	130.4	132.5	133.4	133.6	133.2	133.1	133.2
Other foods at home	146.8	150.2	149.8	150.5	151.5	151.7	151.9	152.0	151.7	152.4	152.6	152.3	153.0	152.6	152.8
Sugar and sweets	147.7	150.1	150.5	149.9	150.3	150.6	150.2	149.5	150.0	151.8	151.3	151.1	151.7	152.8	152.0
Fats and oils	141.4	146.5	143.1	147.3	149.3	151.9	156.1	154.4	151.2	150.1	150.6	148.9	148.6	147.0	147.2
Other foods	161.1	165.4	165.5	165.9	166.8	166.3	165.7	166.6	166.7	167.7	168.1	168.0	169.0	168.5	169.0
Other miscellaneous foods[1,2]	–	102.6	102.5	102.8	103.5	103.7	103.3	104.9	104.9	104.2	105.9	105.0	105.2	104.7	104.4
Food away from home[1]	157.0	161.1	160.8	161.1	161.4	162.0	162.3	162.6	163.0	163.5	163.8	164.1	164.4	164.5	164.4
Other food away from home[1,2]	–	101.6	101.0	101.5	102.2	102.8	102.8	103.4	103.4	103.6	103.7	103.8	104.1	104.2	104.5
Alcoholic beverages	162.1	164.6	164.3	164.5	164.6	165.1	165.4	165.7	166.2	166.5	167.6	167.3	167.8	168.5	168.7
Housing	153.4	156.7	157.0	157.6	157.7	157.8	157.6	157.7	157.8	158.1	158.4	158.8	159.1	159.2	160.2
Shelter	171.2	176.6	176.4	177.0	177.6	177.9	178.4	178.6	178.8	179.3	179.9	180.5	180.8	180.9	181.5
Rent of primary residence	166.3	171.7	171.3	171.8	172.4	173.0	173.5	174.1	174.6	174.9	175.3	175.6	176.0	176.4	176.8
Lodging away from home[2]	–	109.0	110.0	111.9	112.8	109.8	109.7	106.6	104.0	107.1	110.3	114.2	114.5	112.0	113.8
Owners' equivalent rent of primary residence[3]	165.8	171.1	170.8	171.2	171.8	172.4	172.9	173.4	173.7	173.9	174.2	174.5	174.8	175.1	175.4
Tenants' and household insurance[1,2]	–	100.0	99.3	99.4	99.4	99.4	100.0	100.3	100.3	100.1	100.4	100.6	100.6	100.9	102.3
Fuels and utilities	130.5	128.4	131.3	131.5	130.6	130.0	126.9	126.4	126.4	126.0	125.8	125.8	125.5	126.3	130.2
Fuels	117.3	113.3	116.5	116.6	115.6	114.9	111.6	110.9	110.9	110.4	110.2	110.0	109.7	110.6	114.7
Fuel oil and other fuels	99.6	90.3	90.0	88.2	87.0	86.2	86.9	87.4	86.6	87.1	86.8	85.8	88.1	88.0	87.8
Gas (piped) and electricity	124.6	120.8	124.5	124.6	123.6	122.9	119.1	118.3	118.4	117.7	117.5	117.3	116.9	117.9	122.6
Household furnishings and operations	123.9	125.0	125.2	125.6	125.2	124.9	124.9	124.8	124.8	125.0	124.8	124.9	125.2	124.8	124.8
Apparel	132.1	131.6	131.0	128.2	129.9	132.0	134.3	134.0	129.8	127.1	128.5	131.1	133.7	133.0	129.6
Men's and boys' apparel	129.9	131.4	130.7	129.1	129.9	130.7	134.1	134.0	130.2	128.1	129.9	131.6	133.6	134.0	131.6
Women's and girls' apparel	124.9	123.9	123.4	118.6	121.3	125.5	126.9	125.9	121.0	116.4	118.8	123.9	126.5	125.5	120.6
Infants' and toddlers' apparel[1]	130.1	126.7	125.4	122.7	125.0	125.8	131.0	132.7	130.9	130.8	127.2	126.5	129.3	128.9	128.0
Footwear	128.5	128.7	128.8	127.4	128.4	129.3	130.9	130.9	128.2	126.1	125.4	126.8	129.5	127.9	125.8
Transportation	143.6	140.5	140.9	140.8	140.2	139.6	140.4	140.6	139.6	139.1	138.3	139.1	142.9	143.1	142.4
Private transportation	141.3	138.0	138.5	138.2	137.6	137.1	137.9	138.2	137.1	136.5	135.6	136.2	140.1	140.3	139.9
New and used motor vehicles[2]	100.7	100.3	100.0	100.2	100.2	100.1	100.4	101.1	101.1	100.6	99.9	99.5	99.7	99.8	100.0
New vehicles	145.5	144.6	143.8	143.9	144.0	143.4	143.6	144.7	145.3	145.5	145.0	144.5	144.5	144.0	143.6
Used cars and trucks[1]	152.6	152.0	152.3	152.7	152.4	153.2	154.2	155.2	154.3	151.8	149.6	148.7	149.6	150.9	152.2

28. Continued—Consumer Price Indexes for All Urban Consumers and for Urban Wage Earners and Clerical Workers: U.S. city average, by expenditure category and commodity or service group

[1982–84 = 100, unless otherwise indicated]

Series	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Motor fuel	106.2	92.2	95.0	93.9	91.7	90.1	90.9	89.7	86.0	85.0	83.5	86.4	100.8	101.3	99.2
Gasoline (all types)	105.8	91.7	94.5	93.4	91.2	89.6	90.4	89.2	85.5	84.5	83.0	85.9	100.3	100.8	98.7
Motor vehicle parts and equipment	101.0	100.5	100.3	100.5	100.5	100.5	100.7	100.7	100.5	100.6	100.5	99.8	99.6	99.7	99.6
Motor vehicle maintenance and repair	163.7	168.2	167.6	168.0	168.4	169.4	170.3	170.8	170.9	171.2	171.8	172.0	172.3	172.7	173.1
Public transportation	184.2	187.1	185.5	188.7	188.9	186.5	186.3	184.2	185.1	186.8	189.1	194.1	196.4	193.9	189.0
Medical care	234.0	241.4	241.4	242.1	242.8	243.2	243.7	244.0	244.4	245.8	246.9	247.5	248.2	248.7	249.4
Medical care commodities	212.6	218.6	218.9	219.1	219.9	220.8	220.8	221.1	222.1	222.4	223.2	223.9	225.7	225.7	226.6
Medical care services	238.8	246.6	246.4	247.2	248.0	248.2	248.8	249.1	249.4	251.0	252.3	252.8	253.3	253.8	254.5
Professional services	216.7	223.7	224.1	224.4	224.8	225.3	225.8	225.9	226.2	227.3	228.3	228.9	229.7	230.2	231.0
Hospital and related services	274.7	283.6	282.0	284.3	285.6	285.3	286.4	286.9	287.4	290.4	292.4	292.8	292.3	293.0	293.6
Recreation[2]	–	100.9	101.0	100.9	101.1	101.0	100.8	100.8	100.8	101.2	101.3	101.3	101.4	101.5	101.6
Video and audio[1,2]	–	101.1	101.1	101.0	101.1	101.3	101.0	100.8	100.7	101.3	101.4	101.0	100.8	100.6	100.5
Education and communication[2]	–	100.4	100.3	100.2	100.3	101.1	101.1	101.2	100.9	101.2	101.2	101.0	100.9	100.7	100.7
Education[2]	–	102.1	100.9	101.1	102.6	104.3	104.5	104.6	104.7	105.1	105.5	105.6	105.7	105.9	106.0
Educational books and supplies	240.4	253.1	250.9	251.3	251.3	255.9	259.4	259.5	259.7	260.8	263.9	264.0	263.9	264.3	264.8
Tuition, other school fees, and child care	274.6	288.5	284.7	285.3	289.9	294.9	295.2	295.4	295.8	296.6	297.8	298.0	298.3	298.7	299.2
Communication[1,2]	–	99.1	99.8	99.6	98.4	98.5	98.4	98.5	97.8	98.1	97.7	97.4	97.0	96.5	96.4
Information and information processing[1,2]	–	99.0	99.8	99.5	98.3	98.4	98.3	98.4	97.7	97.8	97.4	97.1	96.7	96.2	96.0
Telephone services[1,2]	–	100.7	101.4	101.5	100.5	100.8	100.8	101.2	100.4	100.8	100.5	100.4	100.0	99.8	99.9
Information and information processing other than telephone services[1,4]	51.1	41.2	41.8	40.2	38.9	38.2	37.4	36.6	36.0	35.0	34.4	33.5	33.0	31.8	30.8
Personal computers and peripheral equipment[1,2]	–	77.9	79.5	74.4	71.2	69.0	67.5	65.3	64.0	61.1	59.3	58.9	55.9	55.1	54.0
Other goods and services	221.6	236.1	234.0	236.0	236.2	239.4	240.4	239.2	252.6	259.2	258.3	255.6	259.5	258.8	258.7
Tobacco and smoking products	243.3	274.8	266.8	273.4	273.7	283.7	285.2	281.4	332.0	354.5	348.9	336.0	350.5	345.9	343.5
Personal care[1]	152.6	156.8	156.8	157.0	157.2	157.7	158.3	158.1	158.3	159.1	159.6	160.3	160.4	160.8	161.3
Personal care products[1]	145.1	149.3	150.3	150.1	149.6	150.1	150.4	149.8	149.6	150.7	150.8	151.6	151.7	151.6	153.3
Personal care services[1]	162.5	166.3	165.6	166.4	167.0	167.4	167.8	168.0	168.6	169.1	169.6	170.2	170.6	171.4	171.2
Miscellaneous personal services	225.2	234.0	233.6	233.9	234.9	236.0	236.6	236.9	237.4	239.1	240.8	241.4	241.7	242.3	242.6
Commodity and service group:															
Commodities	141.8	141.8	141.7	141.5	141.5	141.7	142.4	142.4	142.3	142.5	142.2	142.5	144.7	144.6	144.0
Food and beverages	157.2	160.4	159.9	160.2	160.7	160.8	161.6	161.7	161.9	163.1	163.0	162.9	163.0	163.3	163.3
Commodities less food and beverages	132.4	130.6	130.7	130.3	130.0	130.3	131.0	130.9	130.6	130.4	129.9	130.3	133.6	133.4	132.5
Nondurables less food and beverages	134.5	132.1	132.5	131.4	131.3	132.1	133.2	132.5	132.1	132.0	131.8	133.1	139.1	138.8	137.0
Apparel	132.1	131.6	131.0	128.2	129.9	132.0	134.3	134.0	129.8	127.1	128.5	131.1	133.7	133.0	129.6
Nondurables less food, beverages, and apparel	140.4	137.0	137.8	137.7	136.6	136.6	137.3	136.3	137.9	139.2	138.2	138.7	146.7	146.6	145.7
Durables	128.4	127.3	127.2	127.3	127.0	126.7	126.9	127.4	127.4	126.9	126.1	125.7	125.8	125.6	125.6
Services	176.5	181.0	181.1	181.6	181.9	182.2	182.3	182.4	182.5	183.0	183.5	184.0	184.2	184.4	185.2
Rent of shelter[3]	164.7	170.1	169.8	170.4	171.0	171.3	171.8	172.0	172.2	172.7	173.2	173.8	174.1	174.2	174.7
Transporatation services	182.6	185.4	184.9	185.2	185.1	184.7	185.8	186.1	186.1	186.4	186.8	187.8	187.9	187.5	186.7
Other services	206.4	213.7	213.4	213.7	214.3	215.7	215.7	216.2	216.1	217.1	217.7	217.8	218.1	218.4	218.8
Special indexes:															
All items less food	157.6	159.5	159.6	159.7	159.8	160.0	160.4	160.4	160.4	160.5	160.6	161.1	162.6	162.6	162.7
All items less shelter	154.0	155.0	155.1	155.0	155.1	155.3	155.7	155.7	155.6	155.9	155.8	156.1	157.7	157.7	157.6
All items less medical care	154.0	155.8	155.9	156.0	156.1	156.3	156.8	156.8	156.8	157.1	157.1	157.5	158.8	158.8	158.8
Commodities less food	133.6	132.0	132.1	131.5	131.4	131.7	132.4	132.2	132.0	131.8	131.3	131.8	135.0	134.8	133.9
Nondurables less food	136.2	134.1	134.4	133.4	133.3	134.0	135.2	134.5	134.1	134.1	134.0	135.1	140.8	140.6	138.9
Nondurables less food and apparel	141.6	138.7	139.4	139.3	138.3	138.4	139.0	138.2	139.7	140.9	140.0	140.5	147.9	147.9	147.0
Nondurables	146.2	146.5	146.5	146.1	146.3	146.7	147.7	147.4	147.3	147.8	147.7	148.3	151.4	151.4	150.5
Services less rent of shelter[3]	167.6	170.7	171.2	171.5	171.5	171.8	171.3	171.4	171.5	171.9	172.3	172.6	172.7	173.0	174.0
Services less medical care services	171.2	175.4	175.5	176.0	176.3	176.6	176.6	176.8	176.9	177.3	177.8	178.2	178.4	178.6	179.4
Energy	111.1	102.1	105.0	104.5	102.9	101.8	100.5	99.6	97.8	97.0	96.1	97.5	104.5	105.2	106.2
All items less energy	164.1	167.6	167.2	167.4	167.8	168.3	168.9	169.1	169.3	169.8	170.0	170.2	170.7	170.7	170.6
All items less food and energy	166.0	169.6	169.2	169.4	169.8	170.3	170.9	171.1	171.3	171.6	171.9	172.2	172.9	172.8	172.7
Commodities less food and energy	141.9	142.7	142.3	142.0	142.2	142.8	143.5	143.6	144.1	144.0	143.7	143.7	144.8	144.5	143.8
Energy commodities	105.9	92.3	94.8	93.7	91.5	90.0	90.8	89.7	86.2	85.2	83.8	86.6	100.2	100.6	98.6
Services less energy	182.2	187.7	187.3	187.9	188.4	188.8	189.3	189.6	189.7	190.3	190.9	191.5	191.8	191.9	192.2

[1] Not seasonally adjusted.

[2] Indexes on a December 1997 = 100 base.

[3] Indexes on a December 1982 = 100 base.

[4] Indexes on a December 1988 = 100 base.

– Data not available.

NOTE: Index applies to a month as a whole, not to any specific date.

29. Consumer Price Index: U.S. city average and available local area data: all items

[1982–84 = 100, unless otherwise indicated]

Area	Pricing schedule[1]	All Urban Consumers							Urban Wage Earners						
		1998		1999					1998		1999				
		May	June	Feb.	Mar.	Apr.	May	June	May	June	Feb.	Mar.	Apr.	May	June
U.S. city average	M	162.8	163.0	164.5	165.0	166.2	166.2	166.2	159.5	159.7	161.1	161.4	162.7	162.8	162.8
Region and area size[2]															
Northeast urban	M	169.4	169.6	171.6	171.9	172.8	172.8	173.1	166.4	166.5	168.3	168.5	169.5	169.7	170.0
Size A—More than 1,500,000	M	170.2	170.4	172.4	172.8	173.6	173.6	174.1	166.1	166.3	168.1	168.3	169.3	169.4	169.9
Size B/C—50,000 to 1,500,000[3]	M	101.8	101.9	103.0	103.2	103.9	103.9	103.8	101.5	101.5	102.6	102.8	103.5	103.5	103.4
Midwest urban[4]	M	159.4	159.5	160.5	161.0	162.2	162.2	162.5	155.6	155.7	156.5	156.9	158.2	158.3	158.5
Size A—More than 1,500,000	M	160.5	160.8	161.8	162.4	163.6	163.6	164.1	155.9	156.2	157.2	157.5	158.8	158.9	159.3
Size B/C—50,000 to 1,500,000[3]	M	102.3	102.2	102.6	103.0	103.7	103.7	103.7	102.1	101.9	102.2	102.6	103.5	103.4	103.4
Size D—Nonmetropolitan (less than 50,000)	M	153.4	153.3	155.6	155.7	156.4	156.5	156.9	151.3	151.3	153.4	153.4	154.4	154.4	154.9
South urban	M	158.8	159.1	160.0	160.6	161.5	161.6	161.7	156.7	157.1	158.0	158.4	159.4	159.7	159.7
Size A—More than 1,500,000	M	157.7	158.4	158.9	159.7	160.5	160.5	160.9	155.3	155.9	156.4	156.9	157.9	158.1	158.4
Size B/C—50,000 to 1,500,000[3]	M	102.2	102.3	103.0	103.3	103.9	104.1	104.1	101.8	101.8	102.6	102.8	103.5	103.7	103.6
Size D—Nonmetropolitan (less than 50,000)	M	159.3	160.0	160.9	161.5	162.6	162.1	162.0	159.6	160.4	161.0	161.5	162.7	162.6	162.3
West urban	M	164.3	164.2	166.9	167.3	169.0	168.7	168.3	160.3	160.3	162.7	163.2	164.9	164.7	164.2
Size A—More than 1,500,000	M	165.0	165.0	167.8	168.2	170.0	169.8	169.3	159.4	159.3	161.9	162.3	164.2	164.0	163.5
Size B/C—50,000 to 1,500,000[3]	M	102.4	102.3	103.8	104.1	105.1	104.8	104.5	102.2	102.1	103.6	104.0	105.0	104.7	104.3
Size classes:															
A[5]	M	147.3	147.5	149.0	149.5	150.5	150.5	150.7	145.8	146.0	147.4	147.7	148.9	149.0	149.2
B/C[3]	M	102.2	102.2	103.0	103.3	104.1	104.1	104.0	101.9	101.8	102.6	102.9	103.7	103.8	103.6
D	M	158.8	159.2	160.7	161.1	162.1	161.9	162.0	157.8	158.1	159.4	159.8	160.9	160.8	160.9
Selected local areas[6]															
Chicago–Gary–Kenosha, IL–IN–WI	M	165.6	166.0	166.4	167.0	167.6	168.2	168.9	159.9	160.2	160.6	161.1	161.7	162.3	163.0
Los Angeles–Riverside–Orange County, CA	M	162.3	162.2	164.6	165.0	166.6	166.2	165.4	156.2	156.1	158.1	158.3	160.1	159.7	158.9
New York, NY–Northern NJ–Long Island, NY–NJ–CT–PA	M	173.0	173.1	175.1	175.5	176.0	176.1	176.8	168.6	168.8	170.6	170.8	171.3	171.5	172.1
Boston–Brockton–Nashua, MA–NH–ME–CT	1	170.9	–	–	174.8	–	174.2	–	168.9	–	–	172.3	–	172.6	–
Cleveland–Akron, OH	1	159.2	–	–	161.2	–	161.5	–	151.2	–	–	152.9	–	153.7	–
Dallas–Ft Worth, TX	1	153.0	–	–	156.4	–	157.2	–	152.8	–	–	155.8	–	157.0	–
Washington–Baltimore, DC–MD–VA–WV[7]	1	101.5	–	–	103.2	–	103.6	–	101.3	–	–	102.8	–	103.4	–
Atlanta, GA	2	–	162.0	161.9	–	164.0	–	164.8	–	159.3	159.1	–	160.9	–	161.9
Detroit–Ann Arbor–Flint, MI	2	–	159.4	161.2	–	164.1	–	163.8	–	154.0	155.8	–	158.7	–	158.3
Houston–Galveston–Brazoria, TX	2	–	146.4	146.6	–	148.3	–	148.3	–	145.1	145.0	–	146.6	–	147.1
Miami–Ft. Lauderdale, FL	2	–	160.2	161.4	–	161.7	–	161.3	–	157.6	158.8	–	159.1	–	158.9
Philadelphia–Wilmington–Atlantic City, PA–NJ–DE–MD	2	–	168.0	168.6	–	171.1	–	172.1	–	167.4	167.8	–	170.6	–	171.9
San Francisco–Oakland–San Jose, CA	2	–	165.5	169.4	–	172.2	–	171.8	–	161.7	165.7	–	168.8	–	168.3
Seattle–Tacoma–Bremerton, WA	2	–	167.5	170.6	–	172.2	–	172.7	–	162.8	166.0	–	167.8	–	168.0

[1] Foods, fuels, and several other items priced every month in all areas; most other goods and services priced as indicated:
M—Every month.
1—January, March, May, July, September, and November.
2—February, April, June, August, October, and December.

[2] Regions defined as the four Census regions.

[3] Indexes on a December 1996 = 100 base.

[4] The "North Central" region has been renamed the "Midwest" region by the Census Bureau. It is composed of the same geographic entities.

[5] Indexes on a December 1986 = 100 base.

[6] In addition, the following metropolitan areas are published semiannually and appear in tables 34 and 39 of the January and July issues of the *CPI Detailed Report*: Anchorage, AK; Cincinnati–Hamilton, OH–KY–IN; Denver–Boulder–Greeley, CO; Honolulu, HI; Kansas City, MO–KS; Milwaukee–Racine, WI; Minneapolis–St. Paul, MN–WI; Pittsburgh, PA; Portland–Salem, OR–WA; St Louis, MO–IL; San Diego, CA; Tampa–St. Petersburg–Clearwater, FL

[7] Indexes on a November 1996 = 100 base.

– Data not available.

NOTE: Local area CPI indexes are byproducts of the national CPI program. Each local index has a smaller sample size and is, therefore, subject to substantially more sampling and other measurement error. As a result, local area indexes show greater volatility than the national index, although their long-term trends are similar. Therefore, the Bureau of Labor Statistics strongly urges users to consider adopting the national average CPI for use in their escalator clauses. Index applies to a month as a whole, not to any specific date.

30. Annual data: Consumer Price Index, U.S. city average, all items and major groups

[1982–84 = 100]

Series	1990	1991	1992	1993	1994	1995	1996	1997	1998
Consumer Price Index for All Urban Consumers:									
All items:									
Index	130.7	136.2	140.3	144.5	148.2	152.4	156.9	160.5	163.0
Percent change	5.4	4.2	3.0	3.0	2.6	2.8	3.0	2.3	1.6
Food and beverages:									
Index	132.1	136.8	138.7	141.6	144.9	148.9	153.7	157.7	161.1
Percent change	5.8	3.6	1.4	2.1	2.3	2.8	3.2	2.6	2.2
Housing:									
Index	128.5	133.6	137.5	141.2	144.8	148.5	152.8	156.8	160.4
Percent change	4.5	4.0	2.9	2.7	2.5	2.6	2.9	2.6	2.3
Apparel:									
Index	124.1	128.7	131.9	133.7	133.4	132.0	131.7	132.9	133.0
Percent change	4.6	3.7	2.5	1.4	–.2	–1.0	–0.2	.9	.1
Transportation:									
Index	120.5	123.8	126.5	130.4	134.3	139.1	143.0	144.3	141.6
Percent change	5.6	2.7	2.2	3.1	3.0	3.6	2.8	0.9	–1.9
Medical care:									
Index	162.8	177.0	190.1	201.4	211.0	220.5	228.2	234.6	242.1
Percent change	9.0	8.7	7.4	5.9	4.8	4.5	3.5	2.8	3.2
Other goods and services:									
Index	159.0	171.6	183.3	192.9	198.5	206.9	215.4	224.8	237.7
Percent change	7.7	7.9	6.8	5.2	2.9	4.2	4.1	4.4	5.7
Consumer Price Index for Urban Wage Earners and Clerical Workers:									
All items:									
Index	129.0	134.3	138.2	142.1	145.6	149.8	154.1	157.6	159.7
Percent change	5.2	4.1	2.9	2.8	2.5	2.9	2.9	2.3	1.3

31. Producer Price Indexes, by stage of processing

[1982 = 100]

Grouping	Annual average		1998							1999					
	1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
Finished goods	131.8	130.7	130.7	131.0	130.7	130.6	131.4	130.9	131.1	131.4	130.8	131.1	131.9	132.4	132.7
Finished consumer goods	130.2	128.9	129.1	129.4	129.2	129.1	129.8	129.0	129.4	129.7	129.0	129.4	130.4	131.1	131.6
Finished consumer foods	134.5	134.3	133.8	134.7	135.2	135.4	135.5	134.9	134.5	135.6	134.1	134.7	133.4	134.4	135.3
Finshed consumer goods excluding foods	128.2	126.4	127.0	127.0	126.4	126.3	127.1	126.4	127.1	127.1	126.6	127.0	129.0	129.5	129.9
Nondurable goods less food	124.3	122.2	123.4	123.3	122.7	122.8	122.5	121.4	122.7	122.9	122.2	122.9	125.7	126.5	127.2
Durable goods	133.7	132.9	131.8	132.0	131.5	131.0	134.4	134.4	133.8	133.3	133.5	133.1	133.1	132.9	132.4
Capital equipment	138.2	137.6	137.2	137.1	136.8	136.7	138.1	138.2	137.9	137.8	138.0	137.7	137.8	137.8	137.4
Intermediate materials, supplies, and components	125.6	123.0	123.5	123.5	123.2	122.9	122.3	121.8	120.9	120.9	120.4	120.7	121.6	122.1	122.9
Materials and components for manufacturing	128.3	126.1	126.3	126.0	126.0	125.5	125.0	124.6	124.1	123.9	123.5	123.4	123.2	123.6	124.2
Materials for food manufacturing	123.2	123.2	123.0	122.9	124.6	125.1	125.4	125.5	124.0	124.3	122.2	121.4	118.1	119.1	120.1
Materials for nondurable manufacturing	129.6	126.7	127.4	126.9	126.3	125.0	124.4	123.9	123.3	123.0	122.5	122.6	122.7	123.0	124.0
Materials for durable manufacturing	132.8	128.0	128.1	127.8	127.8	127.2	125.9	125.1	124.2	123.5	123.2	123.2	123.2	124.2	125.0
Components for manufacturing	126.4	125.9	126.0	125.8	125.8	125.8	125.8	125.8	125.8	125.8	125.7	125.7	125.7	125.6	125.6
Materials and components for construction	146.5	146.8	146.7	147.2	147.4	147.3	146.7	146.6	146.6	146.9	147.3	147.8	148.0	148.3	149.4
Processed fuels and lubricants	89.3	81.1	83.1	83.2	82.2	82.3	80.8	79.0	75.8	76.1	74.9	76.2	80.6	82.2	84.1
Containers	136.0	140.8	141.4	141.3	140.7	140.6	139.5	139.4	138.7	138.3	138.0	138.5	140.4	141.1	142.1
Supplies	135.9	134.8	134.7	135.1	134.7	134.3	134.1	134.3	134.3	134.1	133.8	133.7	133.8	133.7	133.9
Crude materials for further processing	111.1	96.8	97.6	98.1	94.3	92.1	94.0	93.6	89.8	90.1	88.2	89.0	91.1	96.1	97.2
Foodstuffs and feedstuffs	112.2	103.9	106.2	103.7	103.3	101.3	103.7	102.4	97.0	101.2	98.2	98.8	95.4	99.7	99.6
Crude nonfood materials	106.4	88.4	88.2	90.6	84.7	82.5	83.9	84.1	81.6	79.2	78.1	79.1	84.8	90.2	92.1
Special groupings:															
Finished goods, excluding foods	130.9	129.5	129.7	129.7	129.2	129.1	130.1	129.6	130.0	130.0	129.7	129.9	131.3	131.7	131.8
Finished energy goods	83.4	75.1	77.2	76.9	75.4	75.4	74.6	72.8	70.8	71.3	70.1	71.2	75.9	77.3	78.4
Finished goods less energy	140.2	141.1	140.6	141.0	141.1	141.0	142.2	142.1	142.9	143.0	142.7	142.7	142.3	142.6	142.7
Finished consumer goods less energy	141.0	142.5	142.0	142.5	142.7	142.7	143.8	143.6	144.9	145.1	144.6	144.7	144.2	144.5	144.8
Finished goods less food and energy	142.4	143.7	143.3	143.4	143.3	143.1	144.7	144.8	146.1	145.9	146.0	145.8	145.8	145.8	145.5
Finished consumer goods less food and energy	145.1	147.7	147.2	147.4	147.5	147.4	149.1	149.1	151.6	151.2	151.3	151.2	151.2	151.1	150.9
Consumer nondurable goods less food and energy	153.4	159.1	159.0	159.2	159.8	160.0	160.3	160.3	165.4	165.2	165.2	165.3	165.2	165.3	165.4
Intermediate materials less foods and feeds	125.7	123.4	124.0	123.9	123.6	123.4	122.7	122.2	121.3	121.2	120.9	121.2	122.3	122.8	123.6
Intermediate foods and feeds	125.4	116.2	115.6	116.4	116.5	115.2	114.6	115.5	114.5	114.6	112.6	111.0	109.0	109.5	110.3
Intermediate energy goods	89.0	80.8	82.8	82.9	81.9	82.0	80.5	78.8	75.5	75.9	74.7	76.0	80.3	81.9	83.8
Intermediate goods less energy	133.7	132.4	132.5	132.5	132.4	132.0	131.5	131.4	131.1	130.9	130.6	130.6	130.7	130.9	131.5
Intermediate materials less foods and energy	134.2	133.5	133.6	133.6	133.4	133.1	132.7	132.4	132.1	131.9	131.8	131.9	132.1	132.3	132.9
Crude energy materials	87.3	68.6	66.9	70.9	64.5	62.2	65.6	66.9	64.2	61.0	58.8	60.5	68.1	74.4	76.7
Crude materials less energy	123.5	113.6	116.4	113.9	112.5	110.6	111.1	109.3	104.9	108.1	106.4	106.6	103.9	107.7	107.8
Crude nonfood materials less energy	156.5	142.1	146.6	143.8	139.8	137.9	133.2	130.2	128.1	128.8	130.9	129.9	129.1	131.4	131.9

32. Producer Price Indexes for the net output of major industry groups

[December 1984 = 100, unless otherwise indicated]

SIC	Industry	Annual average		1998							1999					
		1997	1998	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
–	**Total mining industries**	86.1	70.8	69.6	72.3	67.7	65.7	67.9	68.9	66.8	64.1	62.5	64.6	68.0	74.3	76.2
10	Metal mining	85.8	73.2	73.9	74.7	71.6	72.4	71.0	71.0	69.5	68.2	69.3	68.9	67.9	70.4	66.6
12	Coal mining (12/85 = 100)	92.2	89.5	90.2	89.9	87.6	87.3	88.8	89.6	91.4	85.5	89.2	88.7	89.2	90.0	88.9
13	Oil and gas extraction (12/85 = 100)	87.5	68.3	66.6	70.1	64.6	61.8	64.6	65.9	62.9	60.3	57.3	60.3	64.7	72.9	76.1
14	Mining and quarrying of nonmetallic minerals, except fuels	128.8	132.2	132.5	132.6	132.8	132.9	132.9	132.8	132.7	133.0	133.5	133.7	134.1	134.1	134.4
–	**Total manufacturing industries**	127.5	126.2	126.2	126.2	126.0	125.9	126.4	126.2	125.9	126.2	125.9	126.2	127.4	127.7	127.8
20	Food and kindred products	127.9	126.3	126.4	126.6	127.4	127.1	126.6	126.6	126.1	126.6	125.8	125.5	124.2	125.4	126.3
21	Tobacco manufactures	210.8	243.1	237.9	237.9	246.4	247.0	247.7	248.4	316.0	316.5	316.3	315.8	316.0	316.2	316.2
22	Textile mill products	118.8	118.6	119.0	118.7	118.7	118.3	117.8	117.8	117.6	117.1	116.6	116.8	116.3	116.4	116.3
23	Apparel and other finished products made from fabrics and similar materials	123.4	124.8	124.9	124.9	124.9	125.1	125.3	125.0	124.9	125.0	125.1	125.0	125.1	125.2	125.0
24	Lumber and wood products, except furniture	158.9	157.0	155.6	157.0	158.2	157.3	155.3	155.2	155.7	156.7	158.3	160.1	160.1	161.6	165.1
25	Furniture and fixtures	138.2	139.7	139.6	139.6	139.7	139.7	140.1	140.0	140.2	140.5	140.5	140.8	140.7	141.0	141.1
26	Paper and allied products	133.5	136.2	136.7	136.7	136.3	135.5	134.6	134.0	133.5	133.0	132.6	133.2	134.0	134.7	135.5
27	Printing, publishing, and allied industries	169.1	174.0	173.6	173.7	173.7	174.3	174.9	175.2	175.2	176.4	176.5	176.5	176.9	177.2	177.2
28	Chemicals and allied products	147.1	148.7	149.5	149.5	149.1	148.5	148.3	148.1	147.9	147.5	147.3	148.1	148.5	147.7	148.8
29	Petroleum refining and related products	85.6	66.3	68.0	67.0	63.6	64.2	65.5	63.3	56.3	58.6	56.2	59.3	73.3	75.1	73.8
30	Rubber and miscellaneous plastics products	122.8	122.1	122.1	121.9	121.9	121.9	121.6	121.7	121.8	121.5	121.4	121.2	121.9	121.7	121.8
31	Leather and leather products	137.1	137.1	137.2	137.3	137.1	137.2	137.1	136.5	136.7	135.8	136.1	136.8	136.2	135.9	135.8
32	Stone, clay, glass, and concrete products	127.4	129.3	129.4	129.9	130.1	130.2	130.4	130.3	130.2	130.7	131.5	131.7	132.1	132.1	132.5
33	Primary metal industries	124.7	120.9	121.6	120.9	120.6	120.1	119.1	118.0	116.9	115.9	115.1	114.9	114.6	114.9	115.2
34	Fabricated metal products, except machinery and transportation transportation equipment	127.6	128.7	128.9	128.8	128.8	128.9	128.7	128.8	128.7	128.8	128.8	128.8	128.9	128.8	128.9
35	Machinery, except electrical	118.5	117.7	117.7	117.7	117.5	117.6	117.4	117.4	117.3	117.4	117.4	117.5	117.5	117.5	117.5
36	Electrical and electronic machinery, equipment, and supplies	111.6	110.4	110.4	110.4	110.3	110.2	110.0	110.1	110.0	110.0	109.9	109.9	109.8	109.7	109.6
37	Transportation	134.1	133.6	132.5	132.7	132.2	131.8	135.4	135.4	134.9	134.5	134.8	134.3	134.2	134.2	133.6
38	Measuring and controlling instruments; photographic, medical, and optical goods; watches and clocks	125.6	126.0	126.2	125.8	125.9	125.9	125.8	126.1	125.9	126.6	126.6	126.4	126.3	126.7	126.1
39	Miscellaneous manufacturing industries (12/85 = 100)	129.0	129.7	129.6	129.7	129.8	129.9	129.8	129.7	129.8	130.2	130.3	130.3	130.2	130.4	130.4
	Service industries:															
42	Motor freight transportation and warehousing (06/93 = 100)	108.9	111.6	111.5	111.9	112.1	112.4	112.6	112.5	112.7	113.6	113.9	113.9	114.4	114.4	114.8
43	U.S. Postal Service (06/89 = 100)	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	132.3	135.4	135.4	135.4	135.4	135.4	135.2
44	Water transportation (12/92 = 100)	104.2	105.6	106.1	107.9	108.1	108.9	108.4	107.3	105.7	106.0	106.0	105.9	106.1	106.1	117.2
45	Transportation by air (12/92 = 100)	125.3	124.5	124.2	124.2	124.3	125.2	125.4	126.1	126.5	126.6	128.4	128.5	130.0	129.6	131.0
46	Pipelines, except natural gas (12/92 = 100)	98.8	99.2	99.3	99.2	99.2	99.2	99.2	99.2	99.2	98.4	98.2	98.2	98.5	98.5	99.0

33. Annual data: Producer Price Indexes, by stage of processing

[1982 = 100]

Index	1990	1991	1992	1993	1994	1995	1996	1997	1998
Finished goods									
Total	119.2	121.7	123.2	124.7	125.5	127.9	131.3	131.8	130.7
Foods	124.4	124.1	123.3	125.7	126.8	129.0	133.6	134.5	134.3
Energy	75.0	78.1	77.8	78.0	77.0	78.1	83.2	83.4	75.1
Other	126.6	131.1	134.2	135.8	137.1	140.0	142.0	142.4	143.7
Intermediate materials, supplies, and components									
Total	114.5	114.4	114.7	116.2	118.5	124.9	125.7	125.6	123.0
Foods	117.9	115.3	113.9	115.6	118.5	119.5	125.3	123.2	123.2
Energy	85.5	85.1	84.3	84.6	83.0	84.1	89.8	89.0	80.8
Other	120.9	121.4	122.0	123.8	127.1	135.2	134.0	134.2	133.5
Crude materials for further processing									
Total	108.9	101.2	100.4	102.4	101.8	102.7	113.8	111.1	96.8
Foods	113.1	105.5	105.1	108.4	106.5	105.8	121.5	112.2	103.9
Energy	85.9	80.4	78.8	76.7	72.1	69.4	85.0	87.3	68.6
Other	107.3	97.5	94.2	94.1	97.0	105.8	105.7	103.5	84.5

34. U.S. export price indexes by Standard International Trade Classification

[1995 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1998							1999					
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
0	**Food and live animals**	90.9	92.3	89.6	86.7	87.7	89.1	89.5	90.4	89.2	87.8	88.2	89.2	89.0
01	Meat and meat preparations	97.8	97.9	98.4	96.3	93.8	90.7	89.9	90.2	93.3	90.0	88.9	89.9	91.7
04	Cereals and cereal preparations	82.6	82.3	74.9	70.2	73.4	78.2	78.9	79.3	77.8	75.8	76.7	76.2	75.9
05	Vegetables, fruit, and nuts, prepared fresh or dry	98.4	101.6	102.2	99.2	99.4	99.3	99.7	103.2	97.9	94.9	94.8	97.6	98.4
2	**Crude materials, inedible, except fuels**	82.0	82.0	79.9	77.9	75.5	75.7	76.3	75.6	75.0	74.0	74.1	74.6	74.8
21	Hides, skins, and furskins, raw	84.8	81.8	83.9	83.5	80.9	80.1	85.7	82.7	81.4	81.5	78.9	79.0	79.0
22	Oilseeds and oleaginous fruits	102.6	106.6	95.3	91.8	87.9	93.3	95.6	91.4	84.9	78.3	80.4	79.5	79.2
24	Cork and wood	82.0	82.4	82.4	82.2	82.5	81.5	81.4	81.4	81.5	81.5	81.8	81.7	81.9
25	Pulp and waste paper	64.0	64.5	64.5	62.7	59.1	57.6	57.7	59.7	61.3	62.0	61.8	62.8	65.5
26	Textile fibers and their waste	79.3	78.5	76.9	76.3	73.7	71.4	70.6	70.4	70.8	69.7	69.8	70.1	68.6
27	Crude fertilizers and crude minerals	97.0	97.1	96.9	96.9	95.1	95.1	95.1	93.4	93.4	93.6	93.5	93.6	93.6
28	Metalliferous ores and metal scrap	76.6	73.0	72.6	69.7	67.5	67.8	67.9	67.7	68.8	69.8	68.6	70.6	70.6
3	**Mineral fuels, lubricants, and related products**	103.2	96.3	94.7	93.4	94.5	94.5	93.7	93.3	93.4	93.1	99.6	101.1	101.2
32	Coal, coke, and briquettes	100.1	99.9	99.5	99.4	99.5	99.4	99.4	99.3	99.3	99.3	98.3	98.4	98.3
33	Petroleum, petroleum products, and related materials	106.8	95.2	92.9	90.8	93.8	93.9	92.2	91.4	91.4	90.9	103.3	106.1	106.2
4	**Animal and vegetable oils, fats, and waxes**	107.9	104.4	103.4	102.7	102.8	102.9	99.7	98.0	90.6	82.6	82.8	81.9	76.0
5	**Chemicals and related products, n.e.s.**	92.6	92.2	92.1	91.8	91.2	91.2	91.0	90.6	90.6	90.5	90.5	90.9	91.7
54	Medicinal and pharmaceutical products	101.6	101.6	101.6	101.6	101.0	101.0	100.6	100.1	100.2	100.4	100.6	100.6	100.6
55	Essential oils; polishing and cleaning preparations	101.4	101.4	101.4	102.7	102.8	101.7	101.6	101.3	101.4	101.5	101.4	101.8	101.8
57	Plastics in primary forms (12/92 = 100)	88.9	88.8	87.9	87.6	85.9	85.9	85.6	84.6	84.4	84.4	85.8	86.9	89.6
58	Plastics in nonprimary forms (12/92 = 100)	97.9	97.2	97.6	97.3	97.1	95.9	95.4	95.9	95.4	96.4	96.1	96.3	97.2
59	Chemical materials and products, n.e.s.	100.6	100.4	100.4	100.0	100.5	101.1	101.2	100.4	100.8	100.4	100.2	100.5	100.8
6	**Manufactured goods classified chiefly by materials**	97.9	97.5	97.3	96.8	96.6	96.7	96.4	96.7	96.8	96.4	96.5	96.7	96.8
62	Rubber manufactures, n.e.s.	101.9	102.2	102.7	102.4	104.3	106.1	106.0	106.5	107.6	106.8	105.9	106.1	105.7
64	Paper, paperboard, and articles of paper, pulp, and paperboard	83.8	82.7	82.2	81.3	81.3	81.9	81.3	80.3	80.8	80.9	81.9	83.1	83.5
66	Nonmetallic mineral manufactures, n.e.s.	106.7	106.6	106.8	106.8	107.1	107.2	107.3	106.9	106.9	106.5	106.6	106.4	106.4
68	Nonferrous metals	88.1	87.4	86.7	85.5	85.7	85.4	83.9	84.5	85.4	84.0	84.3	84.7	84.8
7	**Machinery and transport equipment**	98.7	98.4	98.3	98.2	98.3	98.2	98.2	98.1	98.1	97.9	98.0	97.8	97.5
71	Power generating machinery and equipment	107.1	106.8	106.8	107.0	107.0	108.0	108.5	109.1	109.3	109.4	109.5	109.5	109.6
72	Machinery specialized for particular industries	105.2	105.3	105.3	105.5	105.5	105.5	105.2	105.7	105.6	105.7	105.8	105.8	106.1
74	General industrial machines and parts, n.e.s., and machine parts	106.1	106.3	106.5	106.4	106.7	106.5	106.5	107.0	107.4	107.2	107.3	107.3	107.3
75	Computer equipment and office machines	76.5	76.0	75.4	74.8	74.5	74.5	74.4	73.6	73.3	73.0	72.7	72.2	71.6
76	Telecommunications and sound recording and reproducing apparatus and equipment	98.7	98.1	98.2	98.2	98.1	97.5	97.6	97.6	97.4	97.6	97.5	97.3	97.0
77	Electrical machinery and equipment	92.1	91.3	91.1	91.2	91.2	90.8	90.6	89.9	89.9	89.3	89.6	88.9	88.2
78	Road vehicles	101.9	102.0	102.0	102.0	102.2	102.2	102.1	102.1	102.3	102.2	102.2	102.3	102.5
87	**Professional, scientific, and controlling instruments and apparatus**	103.8	103.9	103.8	103.8	103.9	104.0	104.1	104.8	104.8	105.0	105.2	105.4	105.2

35. U.S. import price indexes by Standard International Trade Classification

[1995 = 100, unless otherwise indicated]

SITC Rev. 3	Industry	1998							1999					
		June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
0	**Food and live animals**	98.0	97.4	93.9	95.5	97.0	95.8	95.2	96.3	93.2	93.2	94.4	94.6	93.8
01	Meat and meat preparations	98.3	97.7	97.8	97.2	95.5	94.8	91.8	91.9	92.2	94.0	94.5	93.7	94.5
03	Fish and crustaceans, mollusks, and other aquatic invertebrates	109.4	106.1	103.9	103.7	104.2	102.3	100.1	100.9	102.7	103.3	106.0	106.0	104.3
05	Vegetables, fruit, and nuts, prepared fresh or dry	103.5	111.7	98.1	106.7	114.1	109.6	110.6	112.8	102.1	101.7	104.6	106.5	104.9
07	Coffee, tea, cocoa, spices, and manufactures thereof	82.1	73.6	79.4	77.4	73.9	74.6	75.0	76.2	72.3	71.0	69.5	68.7	69.7
1	**Beverages and tobacco**	109.6	109.8	109.7	109.7	109.9	109.7	109.9	110.4	110.0	110.4	110.6	110.4	110.4
11	Beverages	106.3	106.5	106.3	106.4	106.6	106.4	106.6	106.7	106.7	106.9	107.2	107.2	107.2
2	**Crude materials, inedible, except fuels**	87.7	87.3	85.7	85.7	84.0	83.1	84.1	84.3	87.4	86.3	86.1	88.5	90.4
23	Crude rubber (including synthetic and reclaimed)	58.8	54.9	53.8	53.8	54.8	54.6	51.0	–	–	–	–	–	–
24	Cork and wood	101.2	105.5	106.6	107.3	102.5	102.8	106.9	108.6	113.7	113.2	113.6	118.3	122.2
25	Pulp and waste paper	66.1	64.6	62.5	60.8	59.1	58.0	57.8	57.2	57.9	57.6	57.3	58.1	60.6
28	Metalliferous ores and metal scrap	98.6	96.0	94.2	92.9	93.2	92.8	92.8	90.9	90.4	89.9	89.5	91.1	92.2
29	Crude animal and vegetable materials, n.e.s.	113.1	113.4	100.9	105.2	103.8	96.9	99.4	103.4	120.7	109.4	108.6	107.8	101.7
3	**Mineral fuels, lubricants, and related products**	77.6	74.3	73.4	77.5	78.9	72.7	64.6	67.5	66.6	73.2	86.4	93.5	91.8
33	Petroleum, petroleum products, and related materials	73.4	69.5	69.3	74.0	75.7	68.1	58.7	61.7	61.3	70.2	85.0	91.7	90.6
34	Gas, natural and manufactured	111.9	112.6	106.8	106.4	105.8	110.0	110.7	113.5	107.3	97.4	99.3	111.7	104.9
5	**Chemicals and related products, n.e.s.**	93.6	92.9	92.1	91.8	91.8	92.3	91.1	91.4	91.1	90.8	90.6	90.6	90.3
52	Inorganic chemicals	97.8	96.1	94.6	93.9	94.5	94.9	90.9	90.1	88.7	88.6	86.9	86.8	86.4
53	Dying, tanning, and coloring materials	94.9	94.6	94.8	94.8	96.0	97.3	96.5	94.7	94.0	94.3	92.6	91.7	91.8
54	Medicinal and pharmaceutical products	95.3	95.0	94.9	94.6	94.7	95.9	95.7	97.0	97.4	96.7	96.1	95.6	95.3
55	Essential oils; polishing and cleaning preparations	94.8	94.3	93.4	93.8	95.0	95.3	95.2	94.6	94.3	93.5	93.1	92.7	92.4
57	Plastics in primary forms (12/92 = 100)	94.0	93.1	91.2	91.6	90.8	91.5	91.3	91.8	92.2	92.0	92.5	93.3	93.2
58	Plastics in nonprimary forms (12/92 = 100)	79.1	77.1	75.5	74.1	74.0	74.1	73.7	73.5	73.0	73.1	72.7	73.2	73.5
59	Chemical materials and products, n.e.s.	101.4	100.4	100.3	100.6	99.2	99.2	99.4	98.8	98.1	97.9	98.5	98.0	97.4
6	**Manufactured goods classified chiefly by materials**	94.0	93.2	93.1	92.7	92.7	92.5	91.7	91.6	91.8	91.8	91.7	91.8	92.0
62	Rubber manufactures, n.e.s.	95.0	94.7	94.2	94.3	94.3	94.7	94.4	94.6	94.7	94.5	94.2	94.7	94.5
64	Paper, paperboard, and articles of paper, pulp, and paperboard	87.5	87.4	86.9	87.0	87.4	87.5	86.1	85.6	85.7	85.8	85.1	85.2	83.5
66	Nonmetallic mineral manufactures, n.e.s.	100.6	100.2	100.4	100.1	100.5	100.7	100.6	100.7	100.9	101.3	100.9	100.8	100.9
68	Nonferrous metals	90.9	88.0	87.9	86.3	85.9	83.8	83.0	82.9	84.4	85.9	85.7	85.8	87.9
69	Manufactures of metals, n.e.s.	96.5	96.2	96.2	96.6	96.8	97.3	96.6	97.1	96.8	95.9	95.9	96.4	96.0
7	**Machinery and transport equipment**	91.8	91.4	91.2	90.9	91.0	91.2	91.2	91.2	91.3	90.9	90.6	90.6	90.3
72	Machinery specialized for particular industries	97.6	97.3	97.1	96.7	97.8	98.7	98.4	98.5	98.8	98.3	98.1	97.8	97.7
74	General industrial machines and parts, n.e.s., and machine parts	96.7	96.3	96.5	96.6	97.8	98.7	98.4	98.6	99.1	98.4	97.9	97.7	97.6
75	Computer equipment and office machines	70.4	69.8	69.3	68.7	67.2	66.6	66.7	66.6	65.9	64.4	63.7	63.6	63.1
76	Telecommunications and sound recording and reproducing apparatus and equipment	89.4	88.9	89.0	88.9	88.4	88.5	88.3	88.3	88.5	88.4	87.9	87.8	87.6
77	Electrical machinery and equipment	84.5	83.8	83.8	83.2	83.8	84.0	84.1	83.7	84.1	83.8	83.5	83.3	82.9
78	Road vehicles	101.1	101.0	100.8	100.7	101.0	101.4	101.5	101.9	102.0	101.9	102.0	102.3	102.2
85	Footwear	100.7	100.8	100.9	100.9	101.3	101.1	100.9	101.3	101.4	101.1	101.2	100.5	100.9
88	Photographic apparatus, equipment, and supplies, and optical goods, n.e.s.	91.0	90.9	90.6	90.1	90.7	91.3	91.1	91.9	92.1	91.8	91.4	91.4	91.3

– Data not avaliable.

36. U.S. export price indexes by end-use category

[1995 = 100]

Category	1998							1999					
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
ALL COMMODITIES	96.1	95.8	95.3	94.8	94.7	94.9	94.8	94.8	94.6	94.2	94.4	94.5	94.5
Foods, feeds, and beverages	93.2	94.4	90.9	88.1	88.6	90.6	91.2	91.5	89.4	87.3	88.2	89.0	88.8
Agricultural foods, feeds, and beverages	94.1	94.8	90.5	87.6	88.0	90.3	91.0	91.1	88.7	85.9	86.4	86.8	86.8
Nonagricultural (fish, beverages) food products	84.7	91.5	97.0	94.9	96.1	95.8	94.9	97.5	98.7	103.5	108.5	114.2	111.8
Industrial supplies and materials	90.4	89.3	88.9	88.0	87.4	87.4	87.1	86.8	86.8	86.5	86.8	87.3	87.6
Agricultural industrial supplies and materials	90.3	88.9	87.6	86.0	84.6	82.9	82.7	82.4	81.9	79.9	79.6	79.5	78.4
Fuels and lubricants	100.8	95.7	94.0	92.9	94.2	93.9	92.8	92.8	92.7	92.4	97.8	98.6	99.1
Nonagricultural supplies and materials, excluding fuel and building materials	88.7	87.9	87.7	86.8	86.1	86.2	86.0	85.7	85.7	85.5	85.3	85.8	86.2
Selected building materials	86.0	86.2	87.0	86.8	86.8	86.5	86.1	86.3	86.8	87.3	87.5	87.6	87.8
Capital goods	97.7	97.4	97.2	97.2	97.2	97.0	97.1	97.1	97.1	96.9	97.0	96.7	96.4
Electric and electrical generating equipment	100.5	100.5	100.2	100.1	100.0	99.7	99.5	99.1	99.1	99.1	99.1	98.9	99.0
Nonelectrical machinery	94.5	94.1	93.9	93.9	93.9	93.7	93.7	93.6	93.6	93.4	93.5	93.1	92.8
Automotive vehicles, parts, and engines	102.3	102.4	102.4	102.4	102.8	102.9	102.8	102.9	103.1	103.0	102.9	103.0	103.2
Consumer goods, excluding automotive	101.9	101.9	101.9	102.0	102.1	102.1	101.8	101.9	101.9	101.8	101.9	101.8	101.9
Nondurables, manufactured	102.0	102.0	101.8	102.0	102.2	102.2	101.8	102.1	102.3	102.1	102.0	102.0	102.0
Durables, manufactured	100.7	100.5	100.9	100.9	100.9	100.8	100.7	100.6	100.3	100.3	100.5	100.3	100.6
Agricultural commodities	93.1	93.4	89.6	87.0	87.1	88.6	89.2	89.2	87.1	84.5	84.9	85.2	85.0
Nonagricultural commodities	96.4	96.0	95.9	95.7	95.6	95.6	95.4	95.4	95.5	95.3	95.5	95.6	95.5

37. U.S. import price indexes by end-use category

[1995 = 100]

Category	1998							1999					
	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
ALL COMMODITIES	92.6	91.8	91.4	91.6	91.8	91.3	90.4	90.8	90.7	90.9	91.9	92.6	92.4
Foods, feeds, and beverages	97.1	96.3	94.0	95.4	96.4	95.1	95.1	95.9	93.3	93.0	93.9	94.6	94.1
Agricultural foods, feeds, and beverages	92.8	92.6	89.8	91.7	93.0	91.8	92.3	93.3	89.2	88.7	89.1	90.1	89.9
Nonagricultural (fish, beverages) food product	108.3	105.9	104.9	104.8	105.2	103.8	102.1	102.6	103.8	104.4	106.5	106.5	105.2
Industrial supplies and materials	88.2	86.4	85.8	86.8	87.0	84.9	81.8	82.6	82.5	84.8	89.0	91.6	91.4
Fuels and lubricants	78.5	75.1	74.2	78.2	79.7	73.5	65.5	68.1	67.2	73.9	86.8	93.8	92.4
Petroleum and petroleum products	74.2	70.2	69.8	74.3	76.0	68.6	59.5	62.0	61.7	70.3	84.7	91.3	90.5
Paper and paper base stocks	81.7	81.2	80.2	80.0	80.2	80.0	78.8	78.3	78.6	78.4	77.5	77.7	76.9
Materials associated with nondurable supplies and materials	91.1	89.8	88.8	88.5	88.6	89.1	87.9	87.5	87.3	87.5	87.3	87.3	87.1
Selected building materials	99.7	102.8	104.2	104.4	101.0	101.6	102.8	104.2	107.6	107.9	108.3	110.5	113.9
Unfinished metals associated with durable goo	92.9	90.6	90.1	88.9	88.6	87.4	86.8	86.6	86.6	86.9	86.7	87.3	88.4
Nonmetals associated with durable goods	91.5	90.2	89.7	88.9	88.5	88.6	88.5	88.8	88.6	88.2	87.3	87.3	87.2
Capital goods	85.6	85.0	84.9	84.5	84.5	84.5	84.5	84.5	84.5	83.7	83.3	83.0	82.7
Electric and electrical generating equipment	94.8	94.1	94.1	92.6	92.9	93.5	93.7	93.5	93.6	92.8	92.5	92.3	91.5
Nonelectrical machinery	82.7	82.0	81.9	81.6	81.5	81.5	81.5	81.5	81.5	80.7	80.2	79.9	79.6
Automotive vehicles, parts, and engines	101.0	100.9	100.7	100.6	100.8	101.2	101.3	101.4	101.5	101.4	101.5	101.8	101.7
Consumer goods, excluding automotive	98.2	98.1	97.9	97.8	98.1	98.3	97.9	98.1	98.4	98.0	97.8	97.7	97.5
Nondurables, manufactured	100.9	100.8	100.8	100.8	101.1	101.2	100.8	101.0	101.1	101.0	101.0	100.6	100.5
Durables, manufactured	95.3	95.1	94.9	94.7	95.0	95.3	95.0	95.2	95.2	94.8	94.4	94.5	94.4
Nonmanufactured consumer goods	98.7	98.7	97.1	97.6	97.7	96.7	97.1	97.7	100.9	99.0	98.9	98.8	98.0

38. U.S. international price indexes for selected categories of services

[1990 = 100, unless otherwise indicated]

Category	1997		1998				1999	
	Sept.	Dec.	Mar.	June	Sept.	Dec.	Mar.	June
Air freight (inbound) (9/90 = 100)	88.5	86.5	82.9	83.4	81.8	87.4	88.0	86.2
Air freight (outbound) (9/92 = 100)	99.6	97.7	97.2	96.0	95.8	95.2	92.7	92.9
Air passenger fares (U.S. carriers)	109.2	99.5	99.3	107.8	107.3	103.1	104.5	112.3
Air passenger fares (foreign carriers)	104.6	99.7	97.6	102.4	104.0	101.1	98.9	106.3
Ocean liner freight (inbound)	94.9	92.9	93.0	103.2	105.0	104.2	102.6	133.9

39. Indexes of productivity, hourly compensation, and unit costs, quarterly data seasonally adjusted

[1992 = 100]

Item	Quarterly indexes												
	1996				1997				1998				1999
	I	II	III	IV	I	II	III	IV	I	II	III	IV	I
Business													
Output per hour of all persons	103.0	103.8	103.8	104.2	104.4	104.8	105.8	106.0	107.1	107.1	107.8	109.0	110.1
Compensation per hour	108.9	110.4	111.4	112.3	113.2	113.9	115.0	116.5	117.9	119.1	120.2	121.5	123.0
Real compensation per hour	98.5	98.9	99.3	99.2	99.5	99.8	100.3	101.1	102.1	102.7	103.2	103.9	104.8
Unit labor costs	105.7	106.3	107.3	107.8	108.5	108.7	108.8	109.9	110.2	111.2	111.5	111.5	111.7
Unit nonlabor payments	111.9	112.1	111.5	111.8	112.4	113.2	113.8	112.4	112.2	110.5	110.4	110.7	110.8
Implicit price deflator	107.9	108.4	108.8	109.2	109.9	110.3	110.6	110.8	110.9	111.0	111.1	111.2	111.4
Nonfarm business													
Output per hour of all persons	103.1	103.8	103.8	104.0	104.1	104.5	105.4	105.6	106.6	106.6	107.3	108.5	109.4
Compensation per hour	108.7	110.1	111.0	111.9	112.9	113.6	114.6	116.0	117.4	118.5	119.7	120.9	122.1
Real compensation per hour	98.3	98.7	99.0	98.9	99.2	99.5	99.9	100.7	101.6	102.1	102.7	103.3	104.0
Unit labor costs	105.4	106.0	107.0	107.5	108.5	108.7	108.8	109.8	110.1	111.1	111.5	111.4	111.6
Unit nonlabor payments	112.3	112.3	111.6	112.2	112.9	113.7	114.6	113.3	113.2	111.6	111.4	111.7	112.3
Implicit price deflator	107.9	108.2	108.6	109.2	110.0	110.4	110.8	111.1	111.2	111.3	111.5	111.5	111.9
Nonfinancial corporations													
Output per hour of all employees	106.4	107.3	108.0	108.6	108.9	109.6	111.1	111.3	112.1	112.9	114.1	115.1	116.2
Compensation per hour	107.7	109.0	110.1	110.8	111.8	112.5	113.6	115.0	116.0	117.3	118.5	119.7	121.1
Real compensation per hour	97.4	97.7	98.1	98.0	98.2	98.5	99.0	99.8	100.4	101.1	101.7	102.3	103.1
Total unit costs	100.6	100.7	100.8	100.9	101.2	101.2	100.7	101.3	101.4	101.7	101.6	102.0	101.8
Unit labor costs	101.2	101.7	101.9	102.1	102.6	102.6	102.3	103.3	103.5	103.9	103.8	104.1	104.2
Unit nonlabor costs	98.7	97.9	97.5	97.4	97.3	97.1	96.4	95.7	95.4	95.5	95.2	96.2	94.2
Unit profits	153.7	154.1	155.3	155.4	156.6	157.3	161.7	155.7	153.5	150.4	151.8	146.6	149.4
Unit nonlabor payments	113.9	113.5	113.5	113.5	113.7	113.8	114.5	112.3	111.5	110.7	110.9	110.1	110.0
Implicit price deflator	105.4	105.5	105.7	105.8	106.2	106.3	106.3	106.3	106.2	106.1	106.1	106.0	106.1
Manufacturing													
Output per hour of all persons	111.9	113.2	114.7	115.5	116.7	118.1	120.7	121.9	122.4	123.6	125.0	126.7	128.6
Compensation per hour	109.2	110.3	111.2	111.9	113.1	114.2	115.7	118.0	119.2	119.9	120.9	121.8	123.4
Real compensation per hour	98.8	98.9	99.1	98.9	99.4	100.0	100.9	102.4	103.2	103.3	103.7	104.1	105.0
Unit labor costs	97.6	97.5	97.0	96.9	97.0	96.7	95.9	96.8	97.3	97.0	96.7	96.2	95.9

– Data not available.

40. Annual indexes of multifactor productivity and related measures, selected years

[1992 = 100]

Item	1960	1970	1980	1989	1990	1991	1993	1994	1995	1996	1997
Private business											
Productivity:											
Output per hour of all persons	50.8	70.1	83.8	95.5	96.1	96.7	100.1	100.6	101.0	103.7	105.2
Output per unit of capital services	117.3	117.1	107.3	103.8	102.1	98.6	100.7	102.3	101.9	102.3	102.6
Multifactor productivity	70.7	86.5	95.3	100.0	99.6	98.1	100.1	100.6	100.7	102.4	103.1
Output	34.0	51.6	72.6	97.8	98.6	96.9	102.7	107.0	110.0	114.7	120.1
Inputs:											
Labor input	60.6	68.3	80.5	99.6	100.2	99.0	102.9	107.1	109.8	112.0	116.2
Capital services	29.0	44.1	67.7	94.2	96.5	98.3	102.0	104.6	108.0	112.2	117.1
Combined units of labor and capital input	48.1	59.7	76.2	97.8	99.0	98.7	102.6	106.3	109.3	112.1	116.5
Capital per hour of all persons	43.3	59.9	78.1	92.0	94.1	98.1	99.4	98.3	99.2	101.4	102.6
Private nonfarm business											
Productivity:											
Output per hour of all persons	54.3	72.2	85.6	95.9	96.3	96.9	100.1	100.6	101.2	103.7	104.9
Output per unit of capital services	126.1	124.1	111.4	104.6	102.6	98.8	100.8	102.1	101.8	102.1	102.1
Multifactor productivity	74.9	89.4	97.6	100.5	99.8	98.4	100.1	100.5	100.8	102.3	102.7
Output	33.7	51.8	73.1	98.1	98.8	97.0	103.0	107.1	110.4	115.0	120.2
Inputs:											
Labor input	56.4	66.6	79.3	99.5	100.2	98.8	103.1	107.2	109.9	112.3	116.6
Capital services	26.7	41.8	65.6	93.9	96.3	98.2	102.2	104.8	108.4	112.6	117.7
Combined units of labor and capital input	45.0	58.0	74.9	97.7	99.0	98.6	102.9	106.5	109.5	112.4	117.0
Capital per hour of all persons	43.0	58.2	76.8	91.7	93.8	98.1	99.3	98.5	99.4	101.6	102.8
Manufacturing											
Productivity:											
Output per hour of all persons	42.1	54.5	70.4	90.7	93.0	95.1	102.2	105.3	109.4	113.8	–
Output per unit of capital services	125.6	116.3	101.5	103.5	101.3	97.3	101.8	105.2	106.8	107.0	–
Multifactor productivity	72.9	84.2	87.3	100.4	99.8	98.6	101.2	104.4	108.4	110.7	–
Output	38.7	56.8	75.7	97.1	97.5	95.5	103.6	109.1	113.8	118.0	–
Inputs:											
Hours of all persons	92.0	104.2	107.5	107.1	104.8	100.4	101.4	103.6	104.0	103.7	–
Capital services	30.9	48.8	74.6	93.8	96.3	98.2	101.7	103.6	106.6	110.3	–
Energy	51.5	85.4	92.5	96.8	99.9	100.1	103.7	107.3	109.5	107.0	–
Nonenergy materials	39.1	46.0	74.5	88.3	91.3	93.1	103.0	104.4	101.4	105.4	–
Purchased business services	27.3	47.4	71.9	88.9	91.8	91.9	104.3	107.8	111.0	111.6	–
Combined units of all factor inputs	53.1	67.4	86.7	96.7	97.7	96.9	102.3	104.5	105.0	106.6	–

– Data not available.

41. Annual indexes of productivity, hourly compensation, unit costs, and prices, selected years

[1992 = 100]

Item	1960	1970	1980	1988	1989	1990	1991	1993	1994	1995	1996	1997	1998
Business													
Output per hour of all persons	51.4	70.6	84.2	94.7	95.5	96.1	96.7	100.1	100.7	101.0	103.7	105.2	107.7
Compensation per hour	13.7	23.6	54.5	83.6	85.9	90.8	95.1	102.5	104.4	106.8	110.7	114.7	119.7
Real compensation per hour	64.7	85.4	92.8	99.1	97.2	97.4	98.0	99.5	98.8	98.4	99.0	100.3	103.0
Unit labor costs	26.6	33.5	64.7	88.3	90.0	94.4	98.3	102.4	103.7	105.8	106.8	109.0	111.1
Unit nonlabor payments	24.6	30.6	59.6	84.1	91.3	93.5	96.6	102.7	106.8	108.8	111.8	112.9	110.9
Implicit price deflator	25.8	32.4	62.8	86.8	90.4	94.1	97.7	102.5	104.8	106.9	108.6	110.4	111.0
Nonfarm business													
Output per hour of all persons	54.8	72.7	86.0	95.3	95.8	96.3	97.0	100.1	100.6	101.2	103.7	104.9	107.2
Compensation per hour	14.3	23.8	54.8	83.7	86.0	90.7	95.1	102.2	104.2	106.7	110.4	114.3	119.1
Real compensation per hour	67.8	86.1	93.4	99.3	97.3	97.3	98.0	99.3	98.7	98.2	98.7	99.9	102.5
Unit labor costs	26.1	32.8	63.8	87.8	89.7	94.2	98.1	102.2	103.6	105.4	106.5	108.9	111.1
Unit nonlabor payments	24.0	30.3	58.6	83.8	90.7	93.1	96.8	103.1	107.3	109.9	112.1	113.6	112.0
Implicit price deflator	25.3	31.9	61.9	86.4	90.0	93.8	97.6	102.5	104.9	107.0	108.5	110.6	111.4
Nonfinancial corporations													
Output per hour of all employees	54.5	69.1	80.4	96.9	95.5	96.1	97.6	101.1	103.5	104.7	107.6	110.3	113.6
Compensation per hour	15.6	25.4	56.7	84.9	87.1	91.5	95.7	102.0	104.1	106.2	109.5	113.3	118.0
Real compensation per hour	73.9	91.7	96.5	100.7	98.5	98.2	98.5	99.1	98.5	97.8	97.9	99.0	101.6
Total unit costs	27.8	36.1	70.2	88.2	92.5	96.2	99.3	100.5	100.3	100.8	100.7	101.1	101.7
Unit labor costs	28.6	36.7	70.5	87.7	91.1	95.2	98.0	100.9	100.6	101.4	101.7	102.7	103.8
Unit nonlabor costs	25.3	34.3	69.2	89.7	96.3	99.1	103.0	99.4	99.7	99.0	97.9	96.6	95.6
Unit profits	47.7	42.0	64.4	103.8	96.0	94.6	93.9	113.3	134.5	143.6	154.6	157.8	150.5
Unit nonlabor payments	31.5	36.4	67.9	93.6	96.2	97.9	100.5	103.2	109.4	111.4	113.6	113.6	110.8
Implicit price deflator	29.6	36.6	69.7	89.6	92.8	96.1	98.8	101.7	103.4	104.7	105.6	106.3	106.1
Manufacturing													
Output per hour of all persons	42.1	54.4	70.4	90.5	90.7	93.0	95.1	102.2	105.3	109.4	113.8	119.4	124.4
Compensation per hour	14.9	23.8	55.8	84.2	86.9	91.0	95.8	102.9	105.8	108.3	110.7	115.3	120.4
Real compensation per hour	70.7	86.2	95.0	99.9	98.3	97.7	98.7	99.9	100.1	99.7	99.0	100.8	103.7
Unit labor costs	35.5	43.8	79.3	93.0	95.8	97.9	100.7	100.7	100.5	99.0	97.2	96.6	96.8
Unit nonlabor payments	26.7	29.3	79.7	90.3	95.1	99.4	98.8	101.0	102.8	106.9	109.5	–	–
Implicit price deflator	30.1	34.9	79.5	91.4	95.3	98.8	99.5	100.9	101.9	103.9	104.7	–	–

– Data not available.

42. Annual indexes of output per hour for selected 3-digit SIC industries

[1987 = 100]

Industry	SIC	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Mining											
Copper ores	102	109.2	106.6	102.7	100.5	115.2	118.1	126.0	117.2	116.5	118.9
Gold and silver ores	104	101.5	113.3	122.3	127.4	141.6	159.8	160.8	144.2	138.3	158.0
Bituminous coal and lignite mining	122	111.7	117.3	118.7	122.4	133.0	141.2	148.1	155.9	168.0	176.8
Crude petroleum and natural gas	131	101.0	98.0	97.0	97.9	102.1	105.9	112.4	119.4	123.7	126.1
Crushed and broken stone	142	101.3	98.7	102.2	99.8	105.0	103.6	108.7	105.4	107.2	114.8
Manufacturing											
Meat products	201	100.1	99.3	97.1	99.7	104.6	104.3	101.2	102.4	97.7	–
Dairy products	202	108.4	107.8	107.3	108.4	111.5	109.7	111.9	116.6	115.9	–
Preserved fruits and vegetables	203	97.0	97.8	95.6	99.2	100.6	106.8	107.6	109.1	109.4	–
Grain mill products	204	101.3	107.6	105.3	104.9	107.7	109.1	108.4	115.3	107.7	–
Bakery products	205	96.8	96.1	92.7	90.6	93.8	94.4	96.4	97.3	95.4	–
Sugar and confectionery products	206	99.4	101.5	102.8	101.3	99.1	103.9	105.4	107.5	112.7	–
Fats and oils	207	108.9	116.4	118.1	120.1	114.1	112.6	111.8	120.3	111.1	–
Beverages	208	106.0	112.7	117.7	120.5	127.6	127.0	130.9	134.3	135.7	–
Miscellaneous food and kindred products	209	107.0	99.3	99.3	101.6	101.6	105.3	101.0	103.1	107.6	–
Cigarettes	211	101.2	109.0	113.2	107.6	111.6	106.5	126.6	142.9	147.7	–
Broadwoven fabric mills, cotton	221	99.6	99.8	103.1	111.2	110.3	117.8	122.1	134.0	137.8	–
Broadwoven fabric mills, manmade	222	99.2	106.3	111.3	116.2	126.2	131.7	142.5	145.2	151.1	–
Narrow fabric mills	224	108.4	92.7	96.5	99.6	112.9	111.4	120.1	118.9	127.5	–
Knitting mills	225	96.3	108.0	107.5	114.1	119.5	128.1	134.3	138.6	150.8	–
Textile finishing, except wool	226	90.3	88.7	83.4	79.9	78.6	79.3	81.2	78.5	79.8	–
Carpets and rugs	227	98.6	97.8	93.2	89.2	96.1	97.1	93.3	95.8	101.2	–
Yarn and thread mills	228	102.1	104.2	110.2	111.4	119.6	126.6	130.7	137.4	146.6	–
Miscellaneous textile goods	229	101.6	109.1	109.2	104.6	106.5	110.4	118.5	123.7	125.4	–
Men's and boys' suits and coats	231	105.1	97.7	93.9	90.2	89.0	97.4	97.7	92.5	96.5	–
Men's and boys' furnishings	232	100.1	100.1	102.1	108.4	109.1	108.4	111.7	123.4	134.0	–
Women's and misses' outerwear	233	101.4	96.8	104.1	104.3	109.4	121.8	127.4	135.5	144.2	–
Women's and children's undergarments	234	105.4	94.6	102.1	113.6	117.4	124.5	138.0	161.3	171.6	–
Hats, caps, and millinery	235	99.0	96.4	89.2	91.1	93.6	87.2	77.7	84.3	80.9	–
Miscellaneous apparel and accessories	238	101.3	88.4	90.6	91.8	91.3	94.0	105.5	116.8	121.3	–
Miscellaneous fabricated textile products	239	96.6	95.7	99.9	100.7	107.5	108.5	107.8	109.2	106.3	–
Logging	241	93.7	89.4	86.3	86.0	96.2	88.6	87.8	86.0	86.0	–
Sawmills and planing mills	242	100.7	99.6	99.8	102.6	108.1	101.9	103.3	110.2	114.9	–
Millwork, plywood, and structural members	243	98.9	97.1	98.0	98.0	99.9	97.0	94.5	92.7	92.2	–
Wood containers	244	103.1	108.8	111.2	113.1	109.4	100.1	100.9	106.1	106.5	–
Wood buildings and mobile homes	245	97.8	98.8	103.1	103.0	103.1	103.8	98.3	97.0	97.0	–
Miscellaneous wood products	249	95.9	102.4	107.7	110.5	114.2	115.3	111.8	115.4	114.2	–
Household furniture	251	99.4	102.0	104.5	107.1	110.5	110.6	112.5	116.9	122.2	–
Office furniture	252	94.3	97.5	95.0	94.1	102.5	103.2	100.5	101.1	106.8	–
Public building and related furniture	253	109.6	113.7	119.8	120.2	140.6	161.0	157.4	173.3	179.9	–
Partitions and fixtures	254	95.7	92.4	95.6	93.0	102.7	107.4	98.9	101.2	97.3	–
Miscellaneous furniture and fixtures	259	103.6	101.9	103.5	102.1	99.5	103.6	104.7	110.0	113.6	–
Pulp mills	261	99.6	107.4	116.7	128.3	137.3	122.5	128.9	131.9	132.7	–
Paper mills	262	103.9	103.6	102.3	99.2	103.3	102.4	110.2	119.0	111.9	–
Paperboard mills	263	105.5	101.9	100.6	101.4	104.4	108.4	114.9	119.5	118.7	–
Paperboard containers and boxes	265	99.7	101.5	101.3	103.4	105.2	107.9	108.4	105.1	106.5	–
Miscellaneous converted paper products	267	101.1	101.6	101.4	105.4	105.5	108.0	110.8	113.4	114.6	–
Newspapers	271	96.9	95.2	90.6	85.8	81.5	79.4	79.9	79.0	77.1	–
Periodicals	272	97.9	98.3	93.9	89.5	92.9	89.6	82.4	88.5	90.9	–
Books	273	99.1	94.1	96.6	100.8	97.7	103.5	103.0	101.5	100.5	–
Miscellaneous publishing	274	96.7	89.0	92.2	95.9	105.8	104.5	97.5	94.8	93.4	–
Commercial printing	275	100.0	101.1	102.5	102.0	108.0	106.9	106.5	107.2	108.7	–
Manifold business forms	276	98.7	89.7	93.0	89.1	94.5	91.1	82.0	76.9	74.5	–
Greeting cards	277	100.1	109.1	100.6	92.7	96.7	91.4	89.0	92.5	91.8	–
Blankbooks and bookbinding	278	95.6	94.2	99.4	96.1	103.6	98.7	105.4	108.7	115.0	–
Printing trade services	279	99.9	94.3	99.3	100.6	112.0	115.3	111.0	116.7	126.7	–
Industrial inorganic chemicals	281	105.7	104.2	106.7	109.6	109.6	105.4	102.0	109.2	110.4	–
Plastics materials and synthetics	282	98.8	99.7	100.9	100.0	107.5	111.9	125.0	128.7	125.1	–
Drugs	283	101.1	102.9	103.9	104.7	99.6	100.0	105.5	108.9	112.9	–
Soaps, cleaners, and toilet goods	284	102.0	100.7	103.8	105.3	104.4	108.7	111.2	118.6	121.4	–
Paints and allied products	285	101.4	103.3	106.3	104.3	102.9	108.8	116.7	118.0	124.2	–
Industrial organic chemicals	286	109.8	110.3	101.4	95.8	94.5	92.2	100.0	98.8	98.4	–
Agricultural chemicals	287	103.8	104.5	105.0	99.9	99.9	104.3	105.7	109.0	111.4	–
Miscellaneous chemical products	289	95.4	95.2	97.3	96.1	101.8	107.1	105.7	107.8	110.2	–
Petroleum refining	291	105.3	109.6	109.2	106.6	111.3	120.1	123.8	132.3	142.0	–
Asphalt paving and roofing materials	295	98.3	95.3	98.0	94.1	100.4	108.0	104.9	111.2	114.4	–
Miscellaneous petroleum and coal products	299	98.4	101.9	94.8	90.6	101.5	104.2	96.3	87.4	86.4	–

See footnotes at end of table.

42. Continued—Annual indexes of output per hour for selected 3-digit SIC industries

[1987 = 100]

Industry	SIC	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Tires and inner tubes	301	102.9	103.8	103.0	102.4	107.8	116.5	124.1	131.1	138.8	–
Hose and belting and gaskets and packing	305	103.7	96.3	96.1	92.4	97.8	99.7	102.7	104.6	107.2	–
Fabricated rubber products, n.e.c.	306	104.3	105.5	109.2	110.1	115.3	123.2	119.2	121.6	120.3	–
Miscellaneous plastics products, n.e.c.	308	100.5	101.7	105.6	108.1	114.1	116.4	120.4	120.7	124.9	–
Footwear, except rubber	314	101.3	101.1	101.1	94.4	104.2	105.2	113.0	117.1	125.8	–
Luggage	316	93.7	104.8	106.2	100.3	90.7	89.5	92.3	90.5	108.5	–
Handbags and personal leather goods	317	98.5	93.1	96.5	98.7	111.2	97.8	86.8	81.8	83.9	–
Flat glass	321	91.9	90.7	84.5	83.6	92.7	97.7	97.6	99.6	104.2	–
Glass and glassware, pressed or blown	322	100.6	100.2	104.8	102.3	108.9	108.7	112.9	115.7	121.9	–
Products of purchased glass	323	95.9	90.1	92.6	97.7	101.5	106.2	105.9	106.1	124.5	–
Cement, hydraulic	324	103.2	110.2	112.4	108.3	115.1	119.9	125.6	124.3	127.9	–
Structural clay products	325	98.8	103.1	109.6	109.8	111.5	105.8	113.0	111.6	119.5	–
Pottery and related products	326	99.6	97.1	98.6	95.8	99.5	100.3	108.4	109.3	119.4	–
Concrete, gypsum, and plaster products	327	100.8	102.4	102.3	101.2	102.5	104.6	101.5	104.5	107.5	–
Miscellaneous nonmetallic mineral products	329	103.0	95.5	95.4	94.0	104.3	104.5	106.3	107.8	111.3	–
Blast furnace and basic steel products	331	112.6	108.0	109.6	107.8	117.1	133.5	142.4	142.7	153.6	–
Iron and steel foundries	332	104.0	105.4	106.1	104.5	107.2	112.1	113.0	112.7	115.7	–
Primary nonferrous metals	333	107.8	106.1	102.3	110.9	102.0	108.0	105.4	111.1	111.0	–
Nonferrous rolling and drawing	335	95.5	93.6	92.7	90.9	95.8	98.2	101.1	99.1	103.9	–
Nonferrous foundries (castings)	336	102.6	105.1	104.0	103.6	103.6	108.5	112.1	117.8	122.6	–
Miscellaneous primary metal products	339	106.6	105.0	113.7	109.1	114.5	111.3	134.5	152.2	149.6	–
Metal cans and shipping containers	341	106.5	108.5	117.6	122.9	127.8	132.3	140.9	144.2	155.2	–
Cutlery, handtools, and hardware	342	97.8	101.7	97.3	96.8	100.1	104.0	109.2	111.3	117.9	–
Plumbing and heating, except electric	343	103.7	101.5	102.6	102.0	98.4	102.0	109.1	109.2	118.6	–
Fabricated structural metal products	344	100.4	96.9	98.8	100.0	103.9	104.8	107.7	105.8	106.7	–
Screw machine products, bolts, etc.	345	98.5	96.1	96.1	97.9	102.3	104.4	107.2	109.7	110.4	–
Metal forgings and stampings	346	101.5	99.8	95.6	92.9	103.7	108.7	108.5	109.3	113.7	–
Metal services, n.e.c.	347	108.3	102.4	104.7	99.4	111.6	120.6	123.0	127.7	127.5	–
Ordnance and accessories, n.e.c.	348	97.7	89.8	82.1	81.5	88.6	84.6	83.6	87.6	87.4	–
Miscellaneous fabricated metal products	349	101.4	95.9	97.5	97.3	100.9	101.8	103.0	106.4	108.6	–
Engines and turbines	351	106.8	110.7	106.5	105.8	103.3	109.2	122.3	122.7	136.9	–
Farm and garden machinery	352	106.3	110.7	116.5	112.9	113.9	118.6	125.0	134.7	136.6	–
Construction and related machinery	353	106.5	108.3	107.0	99.1	102.0	108.2	117.7	122.1	123.8	–
Metalworking machinery	354	101.0	103.5	101.1	96.4	104.3	107.4	109.9	114.8	114.7	–
Special industry machinery	355	104.6	108.3	107.5	108.3	106.0	113.6	121.2	132.3	134.7	–
General industrial machinery	356	106.0	101.6	101.5	101.6	101.6	104.8	106.7	109.0	110.0	–
Refrigeration and service machinery	358	102.1	106.0	103.6	100.7	104.9	108.6	110.7	112.7	114.4	–
Industrial machinery, n.e.c.	359	106.5	107.1	107.3	109.0	116.9	118.4	127.3	138.8	142.1	–
Electric distribution equipment	361	105.4	105.0	106.3	106.5	119.6	122.2	131.8	143.0	145.1	–
Electrical industrial apparatus	362	104.5	107.3	107.5	106.8	116.8	132.5	134.5	150.4	154.1	–
Household appliances	363	103.0	104.7	105.8	106.5	115.0	123.4	131.4	127.3	126.7	–
Electric lighting and wiring equipment	364	101.9	100.2	99.9	97.5	105.7	107.8	113.4	113.7	117.4	–
Communications equipment	366	110.4	107.0	120.9	123.8	145.4	149.0	164.8	169.6	189.6	–
Miscellaneous electrical equipment & supplies	369	102.8	99.6	90.6	98.6	101.3	108.2	110.5	114.1	123.0	–
Motor vehicles and equipment	371	103.2	103.3	102.4	96.6	104.2	105.3	107.1	104.1	104.1	–
Aircraft and parts	372	100.5	98.2	98.8	108.1	112.2	115.1	109.5	107.8	112.6	–
Ship and boat building and repairing	373	99.4	97.6	103.7	96.3	102.7	106.2	103.8	97.9	100.5	–
Railroad equipment	374	113.5	135.3	141.1	146.9	147.9	151.0	152.5	150.0	146.3	–
Motorcycles, bicycles, and parts	375	92.6	94.6	93.8	99.8	108.4	130.9	125.1	120.3	123.3	–
Guided missiles, space vehicles, parts	376	104.8	110.5	115.7	109.8	109.3	120.9	117.5	118.7	127.3	–
Search and navigation equipment	381	104.8	105.8	112.7	118.9	122.1	129.1	132.1	149.5	141.8	–
Measuring and controlling devices	382	103.1	101.3	106.1	112.9	119.9	124.0	133.8	146.4	150.4	–
Medical instruments and supplies	384	104.4	107.2	116.3	118.4	123.3	126.9	126.1	130.9	140.4	–
Ophthalmic goods	385	112.6	123.3	121.2	125.1	144.5	157.8	160.6	167.2	188.9	–
Photographic equipment & supplies	386	105.6	113.0	107.8	110.2	116.4	126.9	132.7	129.5	129.0	–
Jewelry, silverware, and plated ware	391	100.1	102.9	99.3	95.8	96.7	96.7	99.5	100.2	103.2	–
Musical instruments	393	101.8	96.1	97.1	96.9	96.0	95.6	88.7	86.9	78.9	–
Toys and sporting goods	394	104.8	106.0	108.1	109.7	104.9	114.2	109.7	113.6	120.0	–
Pens, pencils, office, and art supplies	395	108.6	113.3	118.7	117.3	111.7	112.0	130.2	135.4	144.4	–
Costume jewelry and notions	396	102.0	93.8	105.3	106.7	110.8	115.8	129.0	143.7	142.3	–
Miscellaneous manufactures	399	104.5	102.8	107.9	109.9	109.6	107.8	106.2	108.2	113.5	–
Transportation											
U.S. postal service[1]	431	99.9	99.7	104.0	103.7	104.5	107.1	106.6	106.5	104.7	108.3
Air transportation[2]	4512,13,22 (pts.)	99.5	95.8	92.9	92.5	96.9	100.2	105.7	108.6	111.1	112.1
Communications and utilities											
Telephone communications	481	106.2	111.6	113.3	119.8	127.7	135.5	142.2	148.1	159.4	160.2
Radio and television broadcasting	483	103.1	106.2	104.9	106.1	108.3	106.7	110.1	109.6	105.9	101.3
Cable and other pay TV services	484	102.0	99.7	92.5	87.5	88.3	85.1	83.3	84.3	81.6	84.1
Electric utilities	491,3 (pt.)	104.9	107.7	110.1	113.4	115.2	120.6	126.8	135.0	146.5	150.5
Gas utilities	492,3 (pt.)	105.5	103.5	94.8	94.0	95.3	107.0	102.2	107.5	116.0	119.9

See footnotes at end of table.

42. Continued—Annual indexes of output per hour for selected 3-digit SIC industries

[1987 = 100]

Industry	SIC	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Wholesale and retail trade											
Lumber and other building materials dealers	521	101.0	99.1	103.6	101.3	105.4	110.3	117.9	117.0	121.5	124.0
Paint, glass, and wallpaper stores	523	102.8	101.7	106.0	99.4	106.5	112.1	124.6	126.8	132.1	132.3
Hardware stores	525	108.6	115.2	110.5	102.5	107.2	106.5	114.2	110.7	115.2	115.8
Retail nurseries, lawn and garden supply stores	526	106.7	103.4	83.9	88.5	100.4	106.6	116.6	117.1	136.6	119.3
Department stores	531	99.2	97.0	94.2	98.2	100.9	108.1	111.2	113.4	121.0	125.7
Variety stores	533	101.9	124.4	151.2	154.2	167.7	185.5	191.8	205.8	232.6	246.1
Miscellaneous general merchandise stores	539	100.8	109.8	116.4	121.8	136.1	159.7	160.9	164.0	165.1	165.7
Grocery stores	541	98.9	95.4	94.6	93.7	93.3	93.0	92.9	91.9	90.2	89.1
Meat and fish (seafood) markets	542	99.0	97.6	96.8	88.4	95.8	95.8	95.3	95.5	88.8	90.8
Retail bakeries	546	89.8	83.3	89.7	94.7	94.0	88.0	90.1	91.2	87.3	97.6
New and used car dealers	551	103.4	102.5	106.1	104.1	106.5	107.6	108.7	107.1	108.2	107.3
Auto and home supply stores	553	103.2	101.6	102.7	99.0	100.0	100.9	107.0	112.6	113.9	109.7
Gasoline service stations	554	103.0	105.2	102.6	104.3	109.7	113.3	116.5	120.4	117.2	116.5
Men's and boys' wear stores	561	106.0	109.6	113.7	119.2	118.2	115.6	118.1	117.9	126.3	139.1
Women's clothing stores	562	97.8	99.5	101.5	103.0	112.2	116.8	115.8	122.8	133.6	134.1
Family clothing stores	565	102.0	104.9	104.5	106.4	111.7	114.9	121.2	135.2	140.5	143.2
Shoe stores	566	102.7	107.2	106.1	105.1	111.5	112.4	124.4	131.5	142.6	143.5
Miscellaneous apparel and accessory stores	569	96.3	95.2	88.6	78.8	89.1	95.2	105.4	131.2	139.9	128.0
Furniture and homefurnishings stores	571	98.6	100.9	101.8	101.5	108.4	108.5	110.5	114.7	122.5	125.7
Household appliance stores	572	98.5	103.5	102.8	105.2	113.9	115.0	116.8	131.6	132.0	149.4
Radio, television, computer, and music stores	573	118.6	114.6	119.6	128.3	137.8	153.4	178.8	200.0	209.3	220.4
Eating and drinking places	581	102.8	102.2	104.0	103.1	102.5	101.7	98.9	97.6	95.2	93.7
Drug and proprietary stores	591	101.9	102.5	103.6	104.7	103.6	104.8	104.5	105.2	107.5	113.8
Liquor stores	592	98.2	101.1	105.2	105.9	108.4	100.1	98.1	102.0	110.3	107.8
Used merchandise stores	593	105.3	104.9	100.3	98.6	110.4	110.4	111.6	111.6	121.6	122.1
Miscellaneous shopping goods stores	594	100.7	104.2	104.2	105.0	102.7	106.2	111.5	117.2	119.5	124.5
Nonstore retailers	596	105.6	110.8	108.8	109.3	122.1	121.8	130.6	125.7	138.3	148.0
Fuel dealers	598	95.6	92.0	84.4	85.3	84.4	92.2	99.7	112.3	113.3	106.5
Retail stores, n.e.c.	599	105.9	103.1	113.7	103.2	111.6	115.5	121.3	120.5	130.6	137.8
Finance and services											
Commercial banks	602	102.8	104.8	107.7	110.1	111.0	118.9	122.3	127.6	130.9	134.1
Hotels and motels	701	97.6	95.0	96.1	99.1	107.8	106.2	109.6	110.1	109.7	107.9
Laundry, cleaning, and garment services	721	97.2	99.7	101.8	99.2	98.3	98.9	104.0	105.5	108.7	108.1
Photographic studios, portrait	722	100.1	94.9	96.6	92.8	97.7	105.9	117.4	129.3	126.4	135.4
Beauty shops	723	95.1	99.6	96.8	94.8	99.6	95.7	99.8	103.5	106.3	108.9
Barber shops	724	108.8	111.6	100.2	94.1	112.1	120.8	117.7	114.6	127.6	153.4
Funeral services and crematories	726	102.5	97.9	90.9	89.5	103.2	98.2	103.8	99.7	97.1	101.3
Automotive repair shops	753	105.7	108.1	106.9	98.7	103.3	104.0	112.3	119.5	114.1	115.8
Motion picture theaters	783	107.1	114.3	115.8	116.0	110.8	109.8	106.5	101.4	100.4	100.8

[1] Refers to output per full-time equivalent employee year on fiscal basis.

[2] Refers to output per employee.

n.e.c. = not elsewhere classified.

NOTE: Dash indicates data not available.

43. Unemployment rates, approximating U.S. concepts, in nine countries, quarterly data seasonally adjusted

Country	Annual average		1997				1998			
	1997	1998	I	II	III	IV	I	II	III	IV
United States	4.9	4.5	5.2	5.0	4.9	4.7	4.6	4.4	4.5	4.4
Canada	9.2	8.3	9.6	9.4	9.0	8.9	8.6	8.4	8.3	8.0
Australia	8.6	8.0	8.7	8.7	8.6	8.3	8.1	8.1	8.2	7.7
Japan	3.4	4.1	3.3	3.4	3.4	3.5	3.7	4.2	4.3	4.4
France	12.4	11.8	12.4	12.5	12.5	12.3	12.0	11.8	11.7	11.5
Germany	7.8	7.5	7.7	7.8	7.8	7.8	7.7	7.6	7.4	7.3
Italy[1]	12.3	12.3	12.3	12.3	12.2	12.3	12.2	12.3	12.4	12.4
Sweden	10.1	8.4	10.9	10.6	9.7	9.1	8.7	8.6	8.4	7.6
United Kingdom	7.0	6.3	7.4	7.2	6.9	6.6	6.4	6.2	6.3	6.2

[1] Quarterly rates are for the first month of the quarter.

– Data not available.

NOTE: Quarterly figures for France, Germany, and the United Kingdom are calculated by applying annual adjustment factors to current published data, and therefore should be viewed as less precise indicators of unemployment under U.S. concepts than the annual figures. See "Notes on the data" for information on breaks in series. For further qualifications and historical data, see *Comparative Labor Force Statistics, 10 Countries* (Bureau of Labor Statistics, August 1996).

44. Annual data: Employment status of the working-age population, approximating U.S. concepts, 10 countries

[Numbers in thousands]

Employment status and country	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Civilian labor force										
United States[1]	123,869	125,840	126,346	128,105	129,200	131,056	132,304	133,943	136,297	137,673
Canada	14,151	14,329	14,408	14,482	14,663	14,832	14,928	15,145	15,354	15,632
Australia	8,228	8,444	8,490	8,562	8,619	8,776	9,001	9,127	9,221	9,347
Japan	61,920	63,050	64,280	65,040	65,470	65,780	65,990	66,450	67,200	67,230
France	24,170	24,300	24,490	24,570	24,660	24,760	24,810	25,080	25,150	25,260
Germany	28,840	29,410	29,760	30,030	29,960	29,850	29,640	29,500	29,410	29,350
Italy	22,530	22,670	22,940	22,910	22,760	22,640	22,700	22,820	22,850	23,000
Netherlands	6,430	6,640	6,750	6,950	7,090	7,190	7,270	7,370	7,520	–
Sweden	4,552	4,597	4,591	4,520	4,443	4,418	4,460	4,459	4,418	4,402
United Kingdom	28,580	28,730	28,610	28,410	28,310	28,280	28,480	28,620	28,760	28,750
Participation rate[2]										
United States[1]	66.5	66.5	66.2	66.4	66.3	66.6	66.6	66.8	67.1	67.1
Canada	67.5	67.3	66.7	65.9	65.5	65.3	64.8	64.9	64.8	65.1
Australia	64.0	64.6	64.1	63.9	63.6	63.9	64.6	64.6	64.3	64.4
Japan	62.2	62.6	63.2	63.4	63.3	63.1	62.9	63.0	63.2	62.8
France	56.1	56.0	56.0	55.8	55.6	55.5	55.2	55.4	55.2	–
Germany	55.2	55.3	55.4	55.1	54.3	53.7	53.0	52.5	52.2	–
Italy	47.3	47.2	47.7	47.5	48.1	47.5	47.5	47.7	47.7	47.8
Netherlands	54.7	56.1	56.5	57.8	58.5	59.0	59.3	59.7	60.5	–
Sweden	67.3	67.4	67.0	65.7	64.5	63.7	64.1	64.0	63.4	63.1
United Kingdom	64.0	64.1	63.7	63.1	62.8	62.5	62.7	62.7	62.8	–
Employed										
United States[1]	117,342	118,793	117,718	118,492	120,259	123,060	124,900	126,708	129,558	131,463
Canada	13,086	13,165	12,916	12,842	13,015	13,292	13,506	13,676	13,941	14,326
Australia	7,720	7,859	7,676	7,637	7,680	7,921	8,235	8,344	8,429	8,597
Japan	60,500	61,710	62,920	63,620	63,810	63,860	63,890	64,200	64,900	64,400
France	21,850	22,100	22,140	22,010	21,750	21,710	21,890	21,950	22,020	22,290
Germany	27,200	27,950	28,480	28,660	28,240	27,910	27,700	27,380	27,120	27,150
Italy	20,770	21,080	21,360	21,230	20,430	20,080	19,980	20,060	20,050	20,170
Netherlands	5,980	6,230	6,350	6,560	6,620	6,670	6,760	6,900	7,130	–
Sweden	4,480	4,513	4,447	4,265	4,028	3,992	4,056	4,019	3,973	4,034
United Kingdom	26,510	26,740	26,090	25,530	25,340	25,550	26,000	26,280	26,740	26,930
Employment-population ratio[3]										
United States[1]	63.0	62.8	61.7	61.5	61.7	62.5	62.9	63.2	63.8	64.1
Canada	62.4	61.9	59.8	58.4	58.2	58.5	58.6	58.6	58.9	59.7
Australia	60.1	60.1	57.9	57.0	56.6	57.7	59.1	59.1	58.8	59.2
Japan	60.8	61.3	61.8	62.0	61.7	61.3	60.9	60.9	61.0	60.2
France	50.7	50.9	50.6	50.0	49.1	48.7	48.7	48.5	48.3	–
Germany	52.0	52.6	53.0	52.6	51.1	50.2	49.6	48.7	48.1	–
Italy	43.6	43.9	44.5	44.0	43.1	42.1	41.8	41.9	41.8	41.9
Netherlands	50.9	52.6	53.2	54.5	54.7	54.7	55.1	55.9	57.4	–
Sweden	66.2	66.1	64.9	62.0	58.5	57.6	58.3	57.6	57.0	57.8
United Kingdom	59.3	59.6	58.0	56.7	56.2	56.5	57.2	57.6	58.3	–
Unemployed										
United States[1]	6,528	7,047	8,628	9,613	8,940	7,996	7,404	7,236	6,739	6,210
Canada	1,065	1,164	1,492	1,640	1,649	1,541	1,422	1,469	1,414	1,305
Australia	508	585	814	925	939	856	766	783	791	750
Japan	1,420	1,340	1,360	1,420	1,660	1,920	2,100	2,250	2,300	2,790
France	2,320	2,200	2,350	2,560	2,910	3,050	2,920	3,130	3,130	2,970
Germany	1,640	1,460	1,280	1,370	1,720	1,940	1,940	2,120	2,290	2,200
Italy	1,760	1,590	1,580	1,680	2,330	2,560	2,720	2,760	2,800	2,840
Netherlands	450	410	400	390	470	520	510	470	390	–
Sweden	72	84	144	255	415	426	404	440	445	368
United Kingdom	2,070	1,990	2,520	2,880	2,970	2,730	2,480	2,340	2,020	1,820
Unemployment rate										
United States[1]	5.3	5.6	6.8	7.5	6.9	6.1	5.6	5.4	4.9	4.5
Canada	7.5	8.1	10.4	11.3	11.2	10.4	9.5	9.7	9.2	8.3
Australia	6.2	6.9	9.6	10.8	10.9	9.7	8.5	8.6	8.6	8.0
Japan	2.3	2.1	2.1	2.2	2.5	2.9	3.2	3.4	3.4	4.1
France	9.6	9.1	9.6	10.4	11.8	12.3	11.8	12.5	12.4	11.8
Germany	5.7	5.0	4.3	4.6	5.7	6.5	6.5	7.2	7.8	7.5
Italy	7.8	7.0	6.9	7.3	10.2	11.3	12.0	12.1	12.3	12.3
Netherlands	7.0	6.2	5.9	5.6	6.6	7.2	7.0	6.4	5.2	–
Sweden	1.6	1.8	3.1	5.6	9.3	9.6	9.1	9.9	10.1	8.4
United Kingdom	7.2	6.9	8.8	10.1	10.5	9.7	8.7	8.2	7.0	6.3

[1] Data for 1994 are not directly comparable with data for 1993 and earlier years. For additional information, see the box note under "Employment and Unemployment Data" in the notes to this section.

[2] Labor force as a percent of the working-age population.

[3] Employment as a percent of the working-age population.

NOTE: See "Notes on the data" for information on breaks in series for the United States, France, Italy, the Netherlands, and Sweden. Dash indicates data not available.

45. Annual indexes of manufacturing productivity and related measures, 12 countries

[1992 = 100]

Item and country	1960	1970	1973	1980	1987	1988	1989	1990	1991	1993	1994	1995	1996	1997
Output per hour														
United States	–	–	–	71.9	94.4	98.0	97.1	97.8	98.3	102.1	108.3	114.9	117.3	122.3
Canada	40.7	59.2	69.6	75.2	91.1	91.0	92.4	95.2	95.0	103.3	105.7	108.4	106.6	109.6
Japan	14.0	38.0	48.1	63.9	81.2	84.8	89.5	95.4	99.4	100.5	101.8	109.3	111.9	117.4
Belgium	17.9	32.7	42.7	64.5	88.9	92.0	96.9	96.9	99.1	104.1	110.0	108.9	110.0	116.7
Denmark	29.9	52.7	66.9	90.3	90.6	94.1	99.6	99.1	99.6	104.5	–	–	–	–
France	23.0	45.5	53.9	70.5	86.7	92.7	97.4	99.1	98.7	101.8	110.4	114.3	117.9	125.9
Germany	29.2	52.1	61.1	77.3	88.4	91.6	94.5	99.0	101.9	100.6	107.9	111.2	115.1	121.8
Italy	19.6	36.8	43.9	64.0	85.0	86.6	89.4	92.8	95.3	104.5	107.4	113.9	114.4	117.4
Netherlands	19.5	38.6	48.8	69.8	91.7	93.8	97.2	98.6	99.6	101.9	114.2	119.9	124.4	130.2
Norway	36.7	57.8	67.6	76.7	93.3	92.1	94.6	96.6	97.5	100.6	101.4	102.0	102.6	103.2
Sweden	27.6	52.8	62.1	74.0	90.1	90.8	93.8	95.0	95.0	106.7	116.1	122.4	125.4	133.6
United Kingdom	30.2	43.3	51.4	54.4	78.1	82.6	86.2	89.2	93.9	105.6	109.2	107.4	106.1	106.6
Output														
United States	–	–	–	77.3	97.9	104.5	104.0	102.5	98.7	103.5	112.2	119.6	121.6	128.8
Canada	34.2	60.5	76.8	85.4	103.2	109.3	110.8	106.6	98.8	105.9	112.7	118.3	119.5	126.8
Japan	10.7	38.8	50.0	59.9	78.4	84.6	90.2	96.3	101.4	96.0	95.4	100.6	103.2	107.3
Belgium	30.7	57.6	70.6	78.2	88.8	93.3	99.1	101.0	100.7	97.0	101.4	104.2	104.2	109.0
Denmark	40.8	68.0	79.5	91.3	99.3	100.8	104.3	102.7	101.7	99.0	109.3	115.1	119.0	121.7
France	32.4	66.9	80.1	92.7	91.1	96.3	101.6	103.5	101.7	96.2	101.3	105.3	107.5	112.8
Germany	41.5	70.9	78.5	85.3	88.0	90.9	94.0	99.1	102.8	91.8	93.5	93.7	92.5	95.8
Italy	21.5	44.8	54.1	78.7	88.5	94.8	98.6	100.4	99.7	96.6	101.9	107.5	106.1	108.6
Netherlands	31.9	59.8	68.0	77.8	89.5	92.8	96.9	100.1	100.6	98.2	104.2	107.8	110.6	116.1
Norway	56.5	89.1	102.2	103.6	110.7	105.3	101.3	100.2	98.3	102.7	106.7	109.0	111.4	114.8
Sweden	46.5	81.7	88.5	91.8	107.7	110.2	111.6	110.6	103.6	101.3	115.7	130.1	132.9	140.3
United Kingdom	67.8	90.4	99.7	87.2	94.5	101.5	105.5	105.4	100.1	101.5	106.2	107.8	108.3	109.3
Total hours														
United States	92.1	104.4	110.4	107.5	103.8	106.6	107.1	104.8	100.4	101.4	103.6	104.0	103.7	105.3
Canada	84.2	102.2	110.4	113.6	113.2	120.2	120.0	112.0	103.9	102.5	106.6	109.1	112.1	115.8
Japan	76.3	102.3	104.0	93.8	96.6	99.8	100.8	100.9	102.0	95.6	93.7	92.0	92.2	91.4
Belgium	172.1	176.1	165.5	121.3	99.9	101.4	102.3	104.2	101.6	93.2	92.2	95.6	94.7	93.3
Denmark	136.5	129.0	118.8	101.1	109.6	107.2	104.7	103.7	102.1	94.8	–	–	–	–
France	140.6	147.0	148.7	131.5	105.1	104.0	104.4	104.5	103.0	94.5	91.8	92.0	91.2	89.7
Germany	142.4	136.1	128.4	110.3	99.6	99.2	99.5	100.1	100.9	91.3	86.7	84.3	80.4	78.6
Italy	109.6	121.8	123.4	123.0	104.1	109.5	110.2	108.2	104.6	92.4	94.8	94.4	92.8	92.5
Netherlands	163.3	155.1	139.3	111.4	97.6	98.9	99.7	101.6	101.0	96.4	91.3	90.0	88.9	89.2
Norway	154.0	154.3	151.2	135.0	118.6	114.3	107.1	103.7	100.8	102.1	105.2	106.9	108.6	111.3
Sweden	168.3	154.7	142.5	124.0	119.5	121.4	119.0	116.4	109.0	94.9	99.6	106.3	106.0	105.0
United Kingdom	224.6	208.8	194.1	160.5	121.0	122.8	122.4	118.1	106.6	96.1	97.3	100.4	102.0	102.5
Compensation per hour														
United States	14.9	23.8	28.7	55.8	80.9	84.2	86.9	91.0	95.8	102.9	105.8	108.3	110.7	115.3
Canada	10.4	17.8	22.0	47.7	75.3	77.9	82.5	89.5	94.7	99.8	100.4	103.7	106.0	108.8
Japan	4.3	16.5	26.8	58.6	77.9	79.2	84.2	90.7	95.9	104.6	106.7	109.5	110.5	114.0
Belgium	5.6	14.1	21.7	52.7	79.3	81.0	85.2	89.9	95.5	104.9	108.4	111.6	114.1	116.5
Denmark	4.6	13.3	20.5	49.6	80.1	82.9	87.7	92.7	95.9	104.6	–	–	–	–
France	4.3	10.5	14.9	41.3	79.7	82.7	87.2	91.8	96.3	103.6	106.2	107.7	109.4	112.6
Germany	8.2	20.8	29.1	53.9	76.6	79.6	83.4	89.4	95.1	105.9	111.7	117.7	123.7	126.6
Italy	1.6	4.6	7.0	27.9	66.1	68.7	75.5	84.0	93.1	107.1	106.6	112.3	119.4	125.2
Netherlands	6.4	20.3	31.8	64.7	87.8	87.7	88.5	90.8	95.2	103.7	108.2	110.6	113.9	117.0
Norway	4.7	11.8	17.0	39.0	78.5	83.3	87.2	92.3	97.5	101.5	104.4	109.2	114.4	119.6
Sweden	4.1	10.8	15.2	37.4	67.3	71.7	79.4	87.6	95.4	98.0	101.1	106.2	113.4	118.3
United Kingdom	3.1	6.3	9.5	33.1	64.7	68.9	73.6	82.2	92.1	105.9	109.2	110.9	112.2	116.8
Unit labor costs: National currency basis														
United States	–	–	–	77.6	85.7	85.9	89.5	93.1	97.5	100.8	97.7	94.3	94.3	94.3
Canada	25.6	30.0	31.6	63.4	82.6	85.6	89.3	94.0	99.7	96.6	95.0	95.7	99.4	99.3
Japan	30.9	43.3	55.7	91.7	96.0	93.4	94.0	95.0	96.5	104.1	104.9	100.1	98.8	97.1
Belgium	31.2	43.2	50.8	81.7	89.3	88.0	87.9	92.7	96.3	100.8	98.6	102.5	103.7	99.8
Denmark	15.4	25.2	30.6	55.0	88.4	88.2	88.1	93.6	96.3	100.1	93.0	93.4	92.3	95.3
France	18.7	23.0	27.6	58.6	92.0	89.3	89.5	92.6	97.6	101.8	96.2	94.2	92.8	89.4
Germany	28.0	39.9	47.6	69.6	86.7	86.9	88.3	90.3	93.3	105.3	103.6	105.9	107.5	103.9
Italy	8.0	12.6	16.0	43.7	77.8	79.4	84.4	90.5	97.7	102.5	99.2	98.6	104.4	106.6
Netherlands	33.0	52.7	65.1	92.7	95.8	93.5	91.1	92.1	95.6	101.8	94.8	92.9	91.5	89.9
Norway	12.9	20.4	25.1	50.8	84.1	90.4	92.2	95.6	100.0	100.9	102.9	107.1	111.5	115.9
Sweden	14.9	20.5	24.4	50.6	74.7	79.0	84.7	92.3	100.4	91.8	87.0	86.8	90.4	88.5
United Kingdom	10.1	14.6	18.4	60.9	82.8	83.4	85.5	92.1	98.1	100.3	100.1	103.3	105.8	109.5
Unit labor costs: U.S. dollar basis														
United States	–	–	–	77.6	85.7	85.9	89.5	93.1	97.5	100.8	97.7	94.3	94.3	94.3
Canada	31.9	34.8	38.1	65.6	75.3	84.1	91.1	97.3	105.1	90.5	84.0	84.2	88.1	86.7
Japan	10.9	15.3	26.1	51.5	84.2	92.4	86.3	83.1	90.9	118.8	130.1	135.1	115.1	101.7
Belgium	20.1	28.0	42.1	90.0	76.8	76.9	71.7	89.2	90.6	93.7	94.8	111.8	107.6	89.6
Denmark	13.5	20.3	30.7	58.9	77.9	79.0	72.6	91.3	90.8	93.2	88.3	100.7	96.1	87.0
France	20.2	22.0	32.9	73.5	81.0	79.3	74.3	90.0	91.5	95.1	91.8	100.0	96.1	81.1
Germany	10.5	17.1	28.1	59.9	75.3	77.2	73.3	87.3	87.8	99.4	99.8	115.5	111.6	93.5
Italy	15.9	24.7	34.0	62.9	73.9	75.1	75.8	93.0	97.0	80.3	75.8	74.6	83.4	77.1
Netherlands	15.4	25.6	41.2	82.1	83.1	83.1	75.5	88.9	89.8	96.3	91.6	101.2	95.4	81.0
Norway	11.3	17.8	27.2	63.9	77.5	86.1	82.9	95.0	95.7	88.3	90.7	105.0	107.3	101.6
Sweden	16.8	23.0	32.7	69.6	68.5	75.0	76.4	90.8	96.6	68.6	65.7	70.8	78.5	67.5
United Kingdom	16.1	19.7	25.5	80.1	76.9	84.1	79.3	93.0	98.2	85.3	86.8	92.3	93.4	101.5

– Data not available.

46. Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]											
	1986	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]	1995[4]	1996[4]	1997[4]
PRIVATE SECTOR[5]												
Total cases	7.9	8.3	8.6	8.6	8.8	8.4	8.9	8.5	8.4	8.1	7.4	7.1
Lost workday cases	3.6	3.8	4.0	4.0	4.1	3.9	3.9	3.8	3.8	3.6	3.4	3.3
Lost workdays	65.8	69.9	76.1	78.7	84.0	86.5	93.8	–	–	–	–	–
Agriculture, forestry, and fishing[5]												
Total cases	11.2	11.2	10.9	10.9	11.6	10.8	11.6	11.2	10.0	9.7	8.7	8.4
Lost workday cases	5.6	5.7	5.6	5.7	5.9	5.4	5.4	5.0	4.7	4.3	3.9	4.1
Lost workdays	93.6	94.1	101.8	100.9	112.2	108.3	126.9	–	–	–	–	–
Mining												
Total cases	7.4	8.5	8.8	8.5	8.3	7.4	7.3	6.8	6.3	6.2	5.4	5.9
Lost workday cases	4.1	4.9	5.1	4.8	5.0	4.5	4.1	3.9	3.9	3.9	3.2	3.7
Lost workdays	125.9	144.0	152.1	137.2	119.5	129.6	204.7	–	–	–	–	–
Construction												
Total cases	15.2	14.7	14.6	14.3	14.2	13.0	13.1	12.2	11.8	10.6	9.9	9.5
Lost workday cases	6.9	6.8	6.8	6.8	6.7	6.1	5.8	5.5	5.5	4.9	4.5	4.4
Lost workdays	134.5	135.8	142.2	143.3	147.9	148.1	161.9	–	–	–	–	–
General building contractors:												
Total cases	14.9	14.2	14.0	13.9	13.4	12.0	12.2	11.5	10.9	9.8	9.0	8.5
Lost workday cases	6.6	6.5	6.4	6.5	6.4	5.5	5.4	5.1	5.1	4.4	4.0	3.7
Lost workdays	122.7	134.0	132.2	137.3	137.6	132.0	142.7	–	–	–	–	–
Heavy construction, except building:												
Total cases	14.7	14.5	15.1	13.8	13.8	12.8	12.1	11.1	10.2	9.9	9.0	8.7
Lost workday cases	6.3	6.4	7.0	6.5	6.3	6.0	5.4	5.1	5.0	4.8	4.3	4.3
Lost workdays	132.9	139.1	162.3	147.1	144.6	160.1	165.8	–	–	–	–	–
Special trades contractors:												
Total cases	15.6	15.0	14.7	14.6	14.7	13.5	13.8	12.8	12.5	11.1	10.4	10.0
Lost workday cases	7.2	7.1	7.0	6.9	6.9	6.3	6.1	5.8	5.8	5.0	4.8	4.7
Lost workdays	140.4	135.7	141.1	144.9	153.1	151.3	168.3	–	–	–	–	–
Manufacturing												
Total cases	10.6	11.9	13.1	13.1	13.2	12.7	12.5	12.1	12.2	11.6	10.6	10.3
Lost workday cases	4.7	5.3	5.7	5.8	5.8	5.6	5.4	5.3	5.5	5.3	4.9	4.8
Lost workdays	85.2	95.5	107.4	113.0	120.7	121.5	124.6	–	–	–	–	–
Durable goods:												
Total cases	11.0	12.5	14.2	14.1	14.2	13.6	13.4	13.1	13.5	12.8	11.6	11.3
Lost workday cases	4.8	5.4	5.9	6.0	6.0	5.7	5.5	5.4	5.7	5.6	5.1	5.1
Lost workdays	87.1	96.8	111.1	116.5	123.3	122.9	126.7	–	–	–	–	–
Lumber and wood products:												
Total cases	18.9	18.9	19.5	18.4	18.1	16.8	16.3	15.9	15.7	14.9	14.2	13.5
Lost workday cases	9.7	9.6	10.0	9.4	8.8	8.3	7.6	7.6	7.7	7.0	6.8	6.5
Lost workdays	177.2	176.5	189.1	177.5	172.5	172.0	165.8	–	–	–	–	–
Furniture and fixtures:												
Total cases	15.2	15.4	16.6	16.1	16.9	15.9	14.8	14.6	15.0	13.9	12.2	12.0
Lost workday cases	6.3	6.7	7.3	7.2	7.8	7.2	6.6	6.5	7.0	6.4	5.4	5.8
Lost workdays	103.0	103.6	115.7	–	–	–	128.4	–	–	–	–	–
Stone, clay, and glass products:												
Total cases	13.6	14.9	16.0	15.5	15.4	14.8	13.6	13.8	13.2	12.3	12.4	11.8
Lost workday cases	6.5	7.1	7.5	7.4	7.3	6.8	6.1	6.3	6.5	5.7	6.0	5.7
Lost workdays	126.0	135.8	141.0	149.8	160.5	156.0	152.2	–	–	–	–	–
Primary metal industries:												
Total cases	13.6	17.0	19.4	18.7	19.0	17.7	17.5	17.0	16.8	16.5	15.0	15.0
Lost workday cases	6.1	7.4	8.2	8.1	8.1	7.4	7.1	7.3	7.2	7.2	6.8	7.2
Lost workdays	125.5	145.8	161.3	168.3	180.2	169.1	175.5	–	–	–	–	–
Fabricated metal products:												
Total cases	16.0	17.0	18.8	18.5	18.7	17.4	16.8	16.2	16.4	15.8	14.4	14.2
Lost workday cases	6.8	7.2	8.0	7.9	7.9	7.1	6.6	6.7	6.7	6.9	6.2	6.4
Lost workdays	115.5	121.9	138.8	147.6	155.7	146.6	144.0	–	–	–	–	–
Industrial machinery and equipment:												
Total cases	10.7	11.3	12.1	12.1	12.0	11.2	11.1	11.1	11.6	11.2	9.9	10.0
Lost workday cases	4.2	4.4	4.7	4.8	4.7	4.4	4.2	4.2	4.4	4.4	4.0	4.1
Lost workdays	72.0	72.7	82.8	86.8	88.9	86.6	87.7	–	–	–	–	–
Electronic and other electrical equipment:												
Total cases	6.4	7.2	8.0	9.1	9.1	8.6	8.4	8.3	8.3	7.6	6.8	6.6
Lost workday cases	2.7	3.1	3.3	3.9	3.8	3.7	3.6	3.5	3.6	3.3	3.1	3.1
Lost workdays	49.8	55.9	64.6	77.5	79.4	83.0	81.2	–	–	–	–	–
Transportation equipment:												
Total cases	9.6	13.5	17.7	17.7	17.8	18.3	18.7	18.5	19.6	18.6	16.3	15.4
Lost workday cases	4.1	5.7	6.6	6.8	6.9	7.0	7.1	7.1	7.8	7.9	7.0	6.6
Lost workdays	79.1	105.7	134.2	138.6	153.7	166.1	186.6	–	–	–	–	–
Instruments and related products:												
Total cases	5.3	5.8	6.1	5.6	5.9	6.0	5.9	5.6	5.9	5.3	5.1	4.8
Lost workday cases	2.3	2.4	2.6	2.5	2.7	2.7	2.7	2.5	2.7	2.4	2.3	2.3
Lost workdays	42.2	43.9	51.5	55.4	57.8	64.4	65.3	–	–	–	–	–
Miscellaneous manufacturing industries:												
Total cases	10.2	10.7	11.3	11.1	11.3	11.3	10.7	10.0	9.9	9.1	9.5	8.9
Lost workday cases	4.3	4.6	5.1	5.1	5.1	5.1	5.0	4.6	4.5	4.3	4.4	4.2
Lost workdays	70.9	81.5	91.0	97.6	113.1	104.0	108.2	–	–	–	–	–

See footnotes at end of table.

46. Continued—Occupational injury and illness rates by industry,[1] United States

Industry and type of case[2]	Incidence rates per 100 full-time workers[3]											
	1986	1987	1988	1989[1]	1990	1991	1992	1993[4]	1994[4]	1995[4]	1996[4]	1997[4]
Nondurable goods:												
Total cases	10.0	11.1	11.4	11.6	11.7	11.5	11.3	10.7	10.5	9.9	9.2	8.8
Lost workday cases	4.6	5.1	5.4	5.5	5.6	5.5	5.3	5.0	5.1	4.9	4.6	4.4
Lost workdays	82.3	93.5	101.7	107.8	116.9	119.7	121.8	–	–	–	–	–
Food and kindred products:												
Total cases	16.5	17.7	18.5	18.5	20.0	19.5	18.8	17.6	17.1	16.3	15.0	14.5
Lost workday cases	8.0	8.6	9.2	9.3	9.9	9.9	9.5	8.9	9.2	8.7	8.0	8.0
Lost workdays	137.8	153.7	169.7	174.7	202.6	207.2	211.9	–	–	–	–	–
Tobacco products:												
Total cases	6.7	8.6	9.3	8.7	7.7	6.4	6.0	5.8	5.3	5.6	6.7	5.9
Lost workday cases	2.5	2.5	2.9	3.4	3.2	2.8	2.4	2.3	2.4	2.6	2.8	2.7
Lost workdays	45.6	46.4	53.0	64.2	62.3	52.0	42.9	–	–	–	–	–
Textile mill products:												
Total cases	7.8	9.0	9.6	10.3	9.6	10.1	9.9	9.7	8.7	8.2	7.8	6.7
Lost workday cases	3.1	3.6	4.0	4.2	4.0	4.4	4.2	4.1	4.0	4.1	3.6	3.1
Lost workdays	59.3	65.9	78.8	81.4	85.1	88.3	87.1	–	–	–	–	–
Apparel and other textile products:												
Total cases	6.7	7.4	8.1	8.6	8.8	9.2	9.5	9.0	8.9	8.2	7.4	7.0
Lost workday cases	2.7	3.1	3.5	3.8	3.9	4.2	4.0	3.8	3.9	3.6	3.3	3.1
Lost workdays	49.4	59.5	68.2	80.5	92.1	99.9	104.6	–	–	–	–	–
Paper and allied products:												
Total cases	10.5	12.8	13.1	12.7	12.1	11.2	11.0	9.9	9.6	8.5	7.9	7.3
Lost workday cases	4.7	5.8	5.9	5.8	5.5	5.0	5.0	4.6	4.5	4.2	3.8	3.7
Lost workdays	99.5	122.3	124.3	132.9	124.8	122.7	125.9	–	–	–	–	–
Printing and publishing:												
Total cases	6.5	6.7	6.6	6.9	6.9	6.7	7.3	6.9	6.7	6.4	6.0	5.7
Lost workday cases	2.9	3.1	3.2	3.3	3.3	3.2	3.2	3.1	3.0	3.0	2.8	2.7
Lost workdays	50.8	55.1	59.8	63.8	69.8	74.5	74.8	–	–	–	–	–
Chemicals and allied products:												
Total cases	6.3	7.0	7.0	7.0	6.5	6.4	6.0	5.9	5.7	5.5	4.8	4.8
Lost workday cases	2.7	3.1	3.3	3.2	3.1	3.1	2.8	2.7	2.8	2.7	2.4	2.3
Lost workdays	49.4	58.8	59.0	63.4	61.6	62.4	64.2	–	–	–	–	–
Petroleum and coal products:												
Total cases	7.1	7.3	7.0	6.6	6.6	6.2	5.9	5.2	4.7	4.8	4.6	4.3
Lost workday cases	3.2	3.1	3.2	3.3	3.1	2.9	2.8	2.5	2.3	2.4	2.5	2.2
Lost workdays	67.5	65.9	68.4	68.1	77.3	68.2	71.2	–	–	–	–	–
Rubber and miscellaneous plastics products:												
Total cases	14.0	15.9	16.3	16.2	16.2	15.1	14.5	13.9	14.0	12.9	12.3	11.9
Lost workday cases	6.6	7.6	8.1	8.0	7.8	7.2	6.8	6.5	6.7	6.5	6.3	5.8
Lost workdays	118.2	130.8	142.9	147.2	151.3	150.9	153.3	–	–	–	–	–
Leather and leather products:												
Total cases	10.5	12.4	11.4	13.6	12.1	12.5	12.1	12.1	12.0	11.4	10.7	10.6
Lost workday cases	4.8	5.8	5.6	6.5	5.9	5.9	5.4	5.5	5.3	4.8	4.5	4.3
Lost workdays	83.4	114.5	128.2	130.4	152.3	140.8	128.5	–	–	–	–	–
Transportation and public utilities												
Total cases	8.2	8.4	8.9	9.2	9.6	9.3	9.1	9.5	9.3	9.1	8.7	8.2
Lost workday cases	4.8	4.9	5.1	5.3	5.5	5.4	5.1	5.4	5.5	5.2	5.1	4.8
Lost workdays	102.1	108.1	118.6	121.5	134.1	140.0	144.0	–	–	–	–	–
Wholesale and retail trade												
Total cases	7.7	7.7	7.8	8.0	7.9	7.6	8.4	8.1	7.9	7.5	6.8	6.7
Lost workday cases	3.3	3.4	3.5	3.6	3.5	3.4	3.5	3.4	3.4	3.2	2.9	3.0
Lost workdays	54.0	56.1	60.9	63.5	65.6	72.0	80.1	–	–	–	–	–
Wholesale trade:												
Total cases	7.2	7.4	7.6	7.7	7.4	7.2	7.6	7.8	7.7	7.5	6.6	6.5
Lost workday cases	3.6	3.7	3.8	4.0	3.7	3.7	3.6	3.7	3.8	3.6	3.4	3.2
Lost workdays	62.5	64.0	69.2	71.9	71.5	79.2	82.4	–	–	–	–	–
Retail trade:												
Total cases	7.8	7.8	7.9	8.1	8.1	7.7	8.7	8.2	7.9	7.5	6.9	6.8
Lost workday cases	3.2	3.3	3.4	3.4	3.4	3.3	3.4	3.3	3.3	3.0	2.8	2.9
Lost workdays	50.5	52.9	57.6	60.0	63.2	69.1	79.2	–	–	–	–	–
Finance, insurance, and real estate												
Total cases	2.0	2.0	2.0	2.0	2.4	2.4	2.9	2.9	2.7	2.6	2.4	2.2
Lost workday cases	.9	.9	.9	.9	1.1	1.1	1.2	1.2	1.1	1.0	.9	0.9
Lost workdays	17.1	14.3	17.2	17.6	27.3	24.1	32.9	–	–	–	–	–
Services												
Total cases	5.3	5.5	5.4	5.5	6.0	6.2	7.1	6.7	6.5	6.4	6.0	5.6
Lost workday cases	2.5	2.7	2.6	2.7	2.8	2.8	3.0	2.8	2.8	2.8	2.6	2.5
Lost workdays	43.0	45.8	47.7	51.2	56.4	60.0	68.6	–	–	–	–	–

[1] Data for 1989 and subsequent years are based on the *Standard Industrial Classification Manual*, 1987 Edition. For this reason, they are not strictly comparable with data for the years 1985–88, which were based on the *Standard Industrial Classification Manual*, 1972 Edition, 1977 Supplement.

[2] Beginning with the 1992 survey, the annual survey measures only nonfatal injuries and illnesses, while past surveys covered both fatal and nonfatal incidents. To better address fatalities, a basic element of workplace safety, BLS implemented the Census of Fatal Occupational Injuries.

[3] The incidence rates represent the number of injuries and illnesses or lost workdays per 100 full-time workers and were calculated as (N/EH) X 200,000, where:
N = number of injuries and illnesses or lost workdays;
EH = total hours worked by all employees during the calendar year; and
200,000 = base for 100 full-time equivalent workers (working 40 hours per week, 50 weeks per year).

[4] Beginning with the 1993 survey, lost workday estimates will not be generated. As of 1992, BLS began generating percent distributions and the median number of days away from work by industry and for groups of workers sustaining similar work disabilities.

[5] Excludes farms with fewer than 11 employees since 1976.

– Data not available

47. Fatal occupational injuries by event or exposure, 1992–97

Event or exposure[1]	Fatalities			
	1992-96	1996[2]	1997	
	Average	Number	Number	Percent
Total	6,331	6,202	6,218	100
Transportation incidents	2,587	2,601	2,599	42
Highway incident	1,287	1,346	1,387	22
Collision between vehicles, mobile equipment	640	667	639	10
Moving in same direction	104	96	103	2
Moving in opposite directions, oncoming	228	220	229	4
Moving in intersection	125	153	142	2
Vehicle struck stationary object or equipment	231	243	280	5
Noncollision incident	343	352	384	6
Jackknifed or overturned—no collision	250	266	295	5
Nonhighway (farm, industrial premises) incident	400	374	377	6
Overturned	213	206	216	3
Aircraft	334	324	261	4
Worker struck by a vehicle	369	353	367	6
Water vehicle incident	106	119	109	2
Railway	78	74	93	1
Assaults and violent acts	1,275	1,165	1,103	18
Homicides	1,032	927	856	14
Shooting	839	761	705	11
Stabbing	78	80	73	1
Other, including bombing	115	86	78	1
Self-inflicted injuries	213	204	212	3
Contact with objects and equipment	998	1,010	1,034	17
Struck by object	568	582	578	9
Struck by falling object	365	403	384	6
Struck by flying object	69	58	53	1
Caught in or compressed by equipment or objects	289	285	320	5
Caught in running equipment or machinery	147	146	189	3
Caught in or crushed in collapsing materials	122	131	118	2
Falls	645	691	715	11
Fall to lower level	562	610	652	10
Fall from ladder	87	97	116	2
Fall from roof	130	149	154	2
Fall from scaffold, staging	79	88	87	1
Fall on same level	56	52	44	1
Exposure to harmful substances or environments	596	533	550	9
Contact with electric current	327	281	297	5
Contact with overhead power lines	128	116	138	2
Contact with temperature extremes	42	33	40	1
Exposure to caustic, noxious, or allergenic substances	121	123	123	2
Inhalation of substances	75	76	59	1
Oxygen deficiency	105	95	87	1
Drowning, submersion	81	70	70	1
Fires and explosions	193	185	196	3
Other events or exposures[3]	37	17	21	–

[1] Based on the 1992 BLS Occupational Injury and Illness Classification Structures.

[2] The BLS news release issued August 7, 1997, reported a total of 6,112 fatal work injuries for calendar year 1996. Since then, an additional 90 job-related fatalities were identified, bringing the total job-related fatality count for 1996 to 6,202.

[3] Includes the category "Bodily reaction and exertion."

NOTE: Totals for major categories may include subcategories not shown separately. Percentages may not add to totals because of rounding. Dashes indicate less that 0.5 percent or data that are not available or that do not meet publication criteria.

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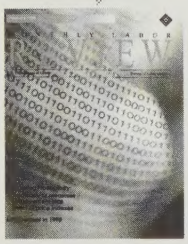

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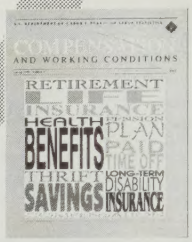

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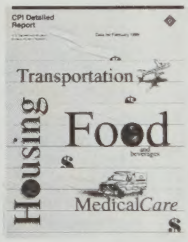

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Productivity and costs	September 2	2nd quarter			November 12	3rd quarter	2; 39–42
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